**EFFECT OF TRAINING OF VOLUNTEERS ON IDENTIFICATION AND REFERRAL OF NEGLECTED TROPICAL DISEASES PATIENTS IN EASTERN REGION, GHANA**

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# **LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| **Abbrevation** | **Abbreviation In Full Words** |
| CBV | community-based volunteer |
| CBSV | Community-based Surveillance volunteer |
| CHPS | Community-based Health Planning and Services |
| DEFF | Design Effect |
| DIT | Diffusion of Innovations Theory |
| GHS-DHRCIRB. | Ghana Health Service - Dodowa Health Research Centre Institutional Review |
| HBM | Health Belief Model |
| ICH-GCP | International Conference on Harmonization-Good Clinical Practice |
| NTD | Neglected tropical diseases |

# **ABSTRACT**

**Background:** Neglected tropical diseases (NTDs) continue to pose significant health challenges in the Eastern Region of Ghana. Cases are often detected at advanced stages, resulting in increased morbidity and perpetuating transmission cycles. Community-based volunteers (CBVs) serve as crucial links between communities and healthcare systems for early detection and referral. The effectiveness of these volunteers is often limited by gaps in knowledge, attitudes, and practices related to NTD control.

**Objective:** This study aims to assess the effect of training on the identification and referral of neglected tropical disease patients by community-based volunteers in the Eastern Region of Ghana.

**Methods:** A quasi-experimental pre-test/post-test design with non-equivalent control groups will be employed, involving 272 CBVs (136 per arm). The intervention group will receive a three-day training program covering six NTDs: leprosy, Buruli ulcer, yaws, lymphatic filariasis, scabies, and schistosomiasis. Data collection will utilize validated questionnaires administered via Kobo Collect toolkit to assess knowledge, attitudes, and case detection rates. The study is grounded in Kirkpatrick’s training evaluation model and incorporates the Health Belief Model and Diffusion of Innovations Theory.

**Expected Outcomes:** The training intervention anticipates a 20% improvement in NTD detection and referral rates, from a baseline of 19.8% to 39.8%. Statistical analysis using R software will evaluate training effectiveness through descriptive and inferential methods, including chi-square tests, logistic regression, and effect size calculations. Findings will inform evidence-based policy for scaling community-based NTD surveillance programs, contributing to WHO’s goal of eliminating NTDs by 2030.

# **INTRODUCTION**

**Background to the Study**

Neglected tropical diseases (NTDs) are infectious diseases that primarily affect marginalized populations in the world’s least-developed regions, particularly in tropical and subtropical areas (Corley et al., 2016; WHO, 2024). Despite their significant health and socioeconomic impact, NTDs receive limited attention in research, funding, and public awareness (Mitra & Mawson, 2017). Over one billion people globally are affected by about 20 NTDs, with Africa bearing a disproportionate burden (Mitra & Mawson, 2017; WHO, 2024). Common NTDs in Africa include lymphatic filariasis, schistosomiasis, onchocerciasis, Buruli ulcer, and leprosy (Gyapong et al., 2016).

NTDs often go unreported because initial symptoms are mild, and health facilities are distant from affected communities, leading to delayed treatment and increased morbidity (Gyapong et al., 2016; Karanja et al., 2018). Women are particularly impacted due to their societal roles (Gyapong et al., 2016). Addressing NTDs requires community-level interventions, with community-based volunteers (CBVs) playing a vital role in education, case identification, and referral (Corley et al., 2016; Owusu et al., 2023). In Ghana, CBVs have been instrumental in national health campaigns and NTD control programs, including mass drug administration and disease awareness (Bodimeade et al., 2019; Ghana Health Service, 2020; Lar et al., 2023).

Training is crucial for CBVs to identify and refer NTD cases effectively. Structured programs may improve their knowledge, attitudes, and ability to mobilize communities (Barogui et al., 2014; Owusu et al., 2023; Yano et al., 2016). Evidence shows that well-trained volunteers may enhance early detection and referral, improving health outcomes (Abass et al., 2015; George et al., 2023). However, limited research exists on the direct impact of CBV training on NTD surveillance in the Eastern region of Ghana. This study, therefore, aims to assess the effect of training community-based volunteers on the identification and referral of NTD patients in the Eastern Region.

**Problem Statement**

Despite ongoing efforts to combat Neglected Tropical Diseases (NTDs), the Eastern Region of Ghana continues to report cases of Buruli ulcer, lymphatic filariasis, yaws, leprosy, and schistosomiasis (Ghana Health Service, 2023). Alarmingly, these cases are often detected at advanced stages, resulting in increased morbidity, disability, and ongoing transmission within communities (Arias Ramos et al., 2020; Duighuisen et al., 2024; Godwin-Akpan et al., 2023; Lar et al., 2023). Late detection not only exacerbates patient outcomes but also perpetuates the spread of these diseases, undermining productivity and reinforcing cycles of poverty, disability, and social stigma (Alderton et al., 2024; Azubuike et al., 2025; Branda et al., 2024; Lenk et al., 2016).

Community-based interventions are critical to addressing these challenges. Community-based volunteers (CBVs) have been identified as key actors in the early detection and referral of NTD cases, especially in hard-to-reach areas (Abass et al., 2015; Owusu et al., 2023; Woldie et al., 2018). However, the effectiveness of CBVs is often undermined by gaps in their knowledge, attitudes, and practices related to NTD control (Musoke et al., 2021; Tsolekile et al., 2018; Ukwaja et al., 2020). These deficiencies contribute to delayed detection and ongoing transmission in affected communities (Ahorlu et al., 2018; Godwin-Akpan et al., 2023; Id et al., 2024).

While evidence from other countries suggests that targeted training can improve CBVs’ knowledge and attitudes towards NTD identification and referral (Godwin-Akpan et al., 2023; Id et al., 2024; Lar et al., 2023), there is limited empirical research on the effectiveness of such training in the Eastern Region of Ghana. Notably, previous studies have not employed experimental designs with control groups to rigorously measure training outcomes (Adjei et al., 2025). Furthermore, data on the impact and effect sizes of these interventions remain scarce. Addressing these gaps is essential for achieving the WHO’s goal of eliminating NTDs by 2030 (WHO, 2020). This study, therefore, seeks to evaluate the effectiveness of training community-based volunteers in the identification and referral of NTD patients in the Eastern Region.

**Justification**

Effective NTD case identification and referral depend on well-trained community-based volunteers (Tchatchouang et al., 2024). Previous studies show training improves volunteers’ knowledge and attitudes (Alo et al., 2022; Godwin-Akpan et al., 2023; Lar et al., 2023), but these had small sample sizes, lacked control groups, and were not conducted in Ghana. This study will use a quasi-experimental design with a larger sample size to robustly assess training effectiveness in the Eastern Region, addressing these gaps and supporting WHO’s goal of ending NTDs by 2030 (WHO, 2020).

**Aim of the Study**

The aim of this study is to assess the effect of training on the identification and referral of neglected tropical disease patients by community-based volunteers in the Eastern Region of Ghana.

**Specific Objectives**

The specific objectives of the study are:

1. To assess the knowledge of Community-based volunteers on NTDs case detection and referral in the control and intervention groups before and after the training in the Eastern Region, Ghana
2. To assess the attitude of Community-based volunteers on NTDs case detection and referral in the control and intervention groups before and after the training in the Eastern Region, Ghana
3. To determine the factors associated with the adoption and implementation of NTD training and the identification and referral of NTD patients among community-based volunteers in the intervention group in the Eastern Region of Ghana
4. To assess the effect of the training on the number of NTD patients identified and referred by the Community-based volunteer before training, at three months, six months, and twelve months post-training in the intervention and control groups in the Eastern Region of Ghana
5. To determine the effect size of the training programme on the knowledge, attitude, and identification, and referral of NTD patients among Community-based volunteers in the Eastern Region, Ghana.

# **LITERATURE REVIEW**

This literature review provides the theoretical foundation and current knowledge on training community-based volunteers for early detection and referral of NTD patients. It covers conceptual and theoretical perspectives, including the Health Belief Model and diffusion of innovation theory. It reviews empirical evidence on the effectiveness, challenges, and gaps related to volunteer training and involvement in NTD control.

**Conceptual Framework**

The study is grounded in Kirkpatrick’s four-level training evaluation model, which systematically measures the effectiveness of training. The conceptual frame is presented in figure 1. The process begins with a baseline assessment of volunteers’ knowledge, attitudes, and performance in NTD detection and referral (Heydari et al., 2019). This enables meaningful comparisons before and after training.

Kirkpatrick Level 1 evaluates CBVs’ satisfaction with the training, ensuring the program is engaging and motivating. Level 2 assesses the extent of knowledge gained and attitude shifts through post-training evaluations (Alsalamah & Callinan, 2021). This focuses on accurate case detection and improved referral practices. Critical to the framework is the identification of factors that facilitate or hinder the translation of learning into practice, directly addressing barriers to implementation.

Level 3 measures real-world behavioral changes by tracking CBVs’ performance in identifying and referring NTD patients over time. Finally, Level 4 assesses the broader impact of training on NTD control, synthesizing outcomes across all levels to determine overall program effectiveness (Ulum, 2015). The causal chain within this framework illustrates how positive training experiences drive learning, leading to sustained behavioral change and improved health outcomes. This structured approach ensures a comprehensive evaluation of CBV training and its contribution to the control of NTDs.

**Theoretical Framework**

This study employs the Health Belief Model and Diffusion of Innovations Theory to examine how community-based volunteer training for NTD control affects volunteers’ knowledge, attitudes, and adoption of new practices.

Pre-intervention

Knowledge

Level

Post-Trg

Knowledge

Levels

Pre-intervention

Attitude

Towards NTD pts

Patients

Training adoption &

Implementa

tion factors

Post

Training

Attitude

Towards NTD

Patients

Effect

size

Training

Effectiveness

Training

Implementa

tion

Post

Training

Number of

NTD patients

Identified &

Referred at 3,6,9,12 months

Baseline

Number of

NTD patients

Identified &

Referred

**Fig. 1: Conceptual framework adapted from the Kirkpatrick model (2009)**

**The Health Belief Model**

The Health Belief Model (HBM), originating from Rosenstock (1966) and Becker (1974), provides a framework for examining individual-level factors influencing community-based volunteers’ activities in NTD surveillance. Its six constructs include: perceived susceptibility (assessed through questions on community vulnerability to NTD transmission); perceived severity (measured via awareness of NTD health consequences using clinical features); perceived benefits and barriers (focusing on intervention efficacy); cues to action (examining motivators like training experiences); and self-efficacy (gauging confidence in performing NTD tasks, linked to training outcomes). The HBM directly informs the study questionnaire design, integrating knowledge items (transmission patterns, clinical outcomes) with attitude scales measuring benefits, barriers, and self-efficacy. Data analysis will include descriptive scoring of these components across volunteer demographics.

**The Diffusion of Innovations Theory (DIT)**

The Diffusion of Innovations Theory (DIT), pioneered by E.M. Rogers (1983), explains how new ideas, behaviors, or products spread through social systems over time. Adoption occurs when individuals perceive an innovation as novel and valuable, fundamentally altering previous practices (Frei-Landau et al., 2022; Rogers, 1983; Zhang et al., 2015). This theory offers critical insights for designing, implementing, and scaling community-based volunteer training programs for Neglected Tropical Disease (NTD) control. By analyzing core DIT concepts—innovation characteristics, adopter categories, communication channels, and implementation contexts—programs can more effectively introduce new surveillance practices. Tailoring strategies to specific audience segments and leveraging social networks enhances adoption rates, ultimately improving health outcomes for marginalized populations (Dearing & Cox, 2018; James et al., 2017; Levy, 2015; Malecela, 2022). Successful implementation requires adaptive approaches based on feedback, alongside strong leadership, adequate resources, and sustained capacity building (Otoo et al., 2021).

Complementing the individual-focused Health Belief Model (HBM), the DIT examines systemic factors that influence the adoption of NTD training. While HBM assesses how knowledge of transmission (perceived susceptibility) and clinical severity shapes volunteer attitudes, DIT evaluates how training innovations diffuse through community networks. This integration enables multi-level analysis: HBM explains individual behavioral determinants, whereas DIT addresses organizational and community-level adoption barriers. The study questionnaire reflects this synthesis, combining HBM-aligned sections (measuring disease knowledge and intervention attitudes) with DIT-informed training evaluations tracking innovation adoption drivers. Demographic variables serve as moderating factors across both frameworks, allowing comprehensive assessment of how volunteer characteristics influence both individual cognition and systemic innovation uptake.

**Empirical Review**

Neglected tropical diseases (NTDs) continue to affect approximately one billion of the world’s most vulnerable populations (WHO, 2025). Community-based volunteers (CBVs) play a crucial role in global disease elimination efforts, serving as vital links between communities and healthcare systems (Asegedew et al., 2019). The World Health Organization (WHO) emphasizes the importance of community involvement in its NTD strategy, highlighting the unique position of volunteers to bridge gaps in healthcare delivery (Ghana Health Service, 2020; Makau-Barasa et al., 2023; Malecela, 2022; Malecela & Ducker, 2021). Evidence consistently shows that well-trained and supervised community health workers (CHWs) can perform specific healthcare tasks as effectively as facility-based professionals (Idriss-Wheeler et al., 2024). For example, a systematic review and meta-analysis demonstrated that training healthcare workers and volunteers significantly increased tuberculosis case detection, underscoring the effectiveness of training interventions (Amare et al., 2023).

In Sub-Saharan Africa, volunteer-based NTD programs present both challenges and opportunities. Integrated training initiatives in Nigeria have yielded positive results, with participants’ knowledge scores rising from 32–54% pre-training to 55–69% post-training, and these improvements were sustained six weeks later (Lar et al., 2023). In Ghana, the NTD Master Plan advocates for joint training of health workers, teachers, environmental officers, and community members at multiple administrative levels (Ghana Health Service, 2012, 2020). While positive outcomes have been reported, challenges persist, including skill shortages, limited integration within the health system, and delays in case management (Owusu et al., 2023). Gender dynamics also play a significant role, as both men and women often prefer interacting with health workers of the same gender during case identification (Godwin-Akpan et al., 2023).

There is broad consensus that training programs enhance knowledge, skills, and case detection rates among CBVs (Amare et al., 2023; Lar et al., 2023). Community embeddedness is widely recognized as essential, fostering trust and acceptance of CHW advice (WHO, 2020). Effective training should encompass both technical and social skills, supported by ongoing supervision (WHO, 2020). Additionally, integrated training covering multiple NTDs is generally considered more efficient than disease-specific approaches (Godwin-Akpan et al., 2023).

Despite these agreements, debates persist regarding the most effective training models and their sustainability. While some support cascade training approaches (Lar et al., 2023), concerns remain about maintaining quality at all levels. The influence of incentives on volunteer retention is also contested; some argue that incentives are crucial (Owusu et al., 2023), while others believe that high-quality training alone can motivate volunteers (Krentel et al., 2017). Furthermore, the optimal duration of training remains unclear, as existing studies do not directly link training length to improved outcomes (Main & Anderson, 2023).

Evidence on the long-term sustainability and cost-effectiveness of various training modalities is limited, especially in resource-constrained settings like Ghana’s Eastern Region (Lar et al., 2023; Tobin-West & Briggs, 2015). Many studies focus on short-term knowledge and attitude changes, with few evaluating sustained behavioral modifications or improvements in case detection and referral rates (Woldie et al., 2018). There is also a notable lack of robust quasi-experimental studies assessing the effect size of training programs on volunteer performance in NTD identification and referral within this context. This underscores the need for more rigorous evaluation frameworks and research to inform evidence-based policy and practice.

# **METHODOLOGY**

**The Research Paradigm**

This study adopts a positivist philosophical perspective, which asserts that knowledge is best gained through objective, measurable processes (Wati, 2024). Positivism is well-suited for quantitative, hypothesis-driven research and is ideal for interventional studies aiming for rigorous, evidence-based analysis (Junjie & Yingxin, 2022; Maretha, 2023). The study will use a quasi-experimental non-equivalent control group design to evaluate the impact of training on community-based volunteers’ knowledge, attitudes, and ability to identify and refer NTD cases, while also examining factors associated with training adoption and implementation (Öskan et al., 2024). Measurement biases will be minimized by employing validated tools and robust statistical methods (Mandasini, 2022). Data will be collected from both intervention and control groups before and after the training to test hypotheses and establish causal relationships (Petousis et al., 2024). This approach ensures findings are objective and can inform public health interventions in similar settings (Crane et al., 2024).

**Study Design**

This study will utilize a quasi-experimental pre-test/post-test design with a non-equivalent control group, chosen due to logistical and ethical constraints that prevent random assignment (Krass, 2016; Miller et al., 2020). Although randomization is not possible, this design allows for causal inferences and effective comparison of outcomes between groups (Reynolds, 2023; Singh, 2021; Wang et al., 2021). The research will proceed in three phases: baseline data collection, training of the experimental group, and post-intervention data collection. Quantitative methods will be used to assess the impact of training on volunteers’ knowledge, attitudes, and NTD case identification (Krass, 2016).

**Study Site**

The study will be conducted in Ghana’s Eastern Region, located in the southeastern part of the country and home to approximately 2.9 million people (Ghana Statistical Service, 2021). Administratively, the region is divided into 33 districts and municipalities, with Koforidua serving as the regional capital and the hub for health administration and service delivery. The population is ethnically diverse, comprising primarily Akan, Ewe, Guan, and Dangme groups.

The region’s economy is largely agrarian, with significant cultivation of cocoa, palm, and oranges, as well as fishing along the Afram and Volta rivers. Mining, including both legal and illegal operations, also contributes to local livelihoods. Healthcare infrastructure includes district hospitals, health centres, and CHPS compounds. Sometimes, geographic barriers such as riverine communities and seasonal flooding impede access to health services, particularly in remote areas (Ghana Statistical Service, 2021).

The Eastern Region was selected for this study due to its high burden of neglected tropical diseases (NTDs), including soil-transmitted helminths, lymphatic filariasis, and schistosomiasis. Some districts report NTD prevalence rates as high as 70% (Akosah-Brempong et al., 2021). Contributing factors include poor sanitation in some areas, limited access to potable water, and resource constraints within the health sector (WHO, 2023). The region’s demographic diversity and urban-rural composition make it an appropriate setting for evaluating the effectiveness of community-based volunteer training interventions in NTD control.

**Study Population**

The study focuses on community-based volunteers in the Eastern Region of Ghana. These volunteers support disease surveillance and health programs, especially in rural areas (Lar et al., 2023; Owusu et al., 2023). Without them, healthcare delivery would be challenging (Awoonor-Williams et al., 2022; Barogui et al., 2014; Chung et al., 2017; WHO/AFRO, 2015). They are the main workforce for NTD control, but most lack formal training and face high attrition rates (Awoonor-Williams et al., 2022; Ngugi et al., 2018). The majority are male (72%) and aged 35–65, with a median age of 50 (GHS, 2022; Kok et al., 2017; Lar et al., 2023). Many are chosen by community leaders, reflecting a strong local approach (Awoonor-Williams et al., 2022; Owusu et al., 2023). Volunteers help with immunization and other health activities. However, many leave due to unclear reasons, possibly needing more incentives (Barogui et al., 2014; Kweku et al., 2020; Philips et al., 2024).

**Inclusion and Exclusion Criteria**

Volunteers must live in rural or urban areas of the Eastern Region and be aged 18–65 years. This age range allows for diversity in the sample. Volunteers must reside in districts endemic for Neglected Tropical Diseases and agree to participate. Those who have attended NTD training within the past year will be excluded to avoid knowledge bias. Volunteers with less than six months of experience are also excluded due to limited exposure. Those with mental health conditions or health issues that prevent them from sitting for one hour will not be included, as they may not participate fully. Volunteers inactive for over five years are excluded to ensure up-to-date knowledge (Awoonor-Williams et al., 2022; Lar et al., 2023).

**Description of Intervention**

The intervention will involve training only the community-based surveillance volunteers in the intervention group who meet the inclusion criteria. The control group will continue with routine community-based surveillance, and no training will be provided to them. Training materials will be adapted from several sources, including the Lar et al. (2023) intervention manual, WHO’s guides for the integrated management of skin NTDs (WHO, 2011, 2018), and the GHS community-based surveillance manual (GHS, 2018).

The training will last three days in each intervention district, with three sessions per district, totaling twelve sessions. Each session will be held in a subdistrict, with a maximum of 12 participants per center to ensure active participation and equal attention (Tausczik & Huang, 2019). The training will follow adult learning principles, with each day lasting four hours and including 20-minute breaks every hour for discussion and reflection (Yusuf, 2021). Six diseases will be covered: Leprosy, Buruli Ulcer, Yaws, Lymphatic Filariasis, Scabies, and Schistosomiasis.

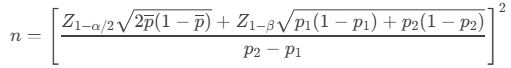
Instructional methods will include brainstorming, video discussions, role plays, and PowerPoint presentations (WHO, 2024). Brainstorming will help volunteers share their existing knowledge and practices (Ahmed & Hamda, 2018). Videos will be used to foster empathy and reduce stigma towards affected individuals (Tergesen et al., 2021). PowerPoint presentations will provide visual information about disease signs, symptoms, transmission, and prevention(Shigli et al., 2016). Role plays will enhance practical skills in NTD detection and reporting (Katebi et al., 2015; Vizeshfar et al., 2019).

Day one will cover Yaws, Buruli Ulcer, Lymphatic Filariasis, and Schistosomiasis. Day two will focus on Scabies and Leprosy, reporting tools, ethics, and referral procedures, followed by role plays. Day three will be dedicated to fieldwork and discussions of field experiences, a unique addition compared to previous shorter trainings (GHS, 2018; Lar et al., 2023). Eight facilitators, including the Principal Investigator, the Eastern regional focal person for NTDs and surveillance officers, will conduct the sessions. For each district, a cured patient will share an experience with the participants. Training will be delivered in Twi, with English videos translated. There will be a viewer discretion advised before every video is shown.

**Sample Size Determination**

Statistical Parameters for Sample Size Determination:

1. Alpha Level (α): The significance level for the study is set at 0.05 (Qinyu et al., 2024). This is to prevent a type 1 error; the likelihood of saying that there is a difference when in fact there is none. The study adopts the standard value of 0.05 to ensure that the conclusions drawn in this study are 95% conﬁdent.
2. Power (1-β): The study aims at a power of 0.8 where β is the probability of committing the Type II error. This means accepting the null hypothesis when, in fact, it is false. A power of 0.80 in this study means that there is 80% confidence in identifying the true effect in improving volunteers’ knowledge, attitude, and identification and referral of NTDs (Berg et al., 2024).
3. Referral rate and expected proportion of outcome in the Intervention group: From a previous study, the detection rate by Community-based volunteers is 19.8% [p1=0.198] (Tchatchouang et al., 2024). The training intervention is assuming an improvement in the rate of NTDs detection and referral by 20%. Thus, p2 will be 39.8% (0.398)
4. Sample Size Calculation: The formula used to estimate the required sample size *n* per group is derived from the standard formula for comparing two independent proportions (Fleiss et al., 2004):



Where:

* n: the desired minimum sample size
* *Z1−α/2:* the critical value from the standard normal distribution corresponding to the chosen significance level 𝛼 (1.96)
* *Z1−β*: the critical value from the standard normal distribution corresponding to the chosen power . (0.84)
* = 0.198 (baseline case detection rate)
* = 0.398 (assumed improvement in case detection and referral)
* represents the difference in proportions between the two groups.

Substituting the figures into the formula, the sample is 81 per arm.

1. Adjustment for design effect (DEFF): To compensate for the sampling error that might have occurred for using a multistage sampling, instead of a simple random sampling technique.(Hulland et al., 2016; Kaiser et al., 2006; Laaksonen, 2018; Minassian, 1997; Shook-Sa & Hudgens, 2020). From previous studies, a design effect of 1.5 was considered suitable in the determination of the sample size for this study (Ahorlu et al., 2018; Islam et al., 2022).

u*nadjusted* = n x DEFF

= 81 x 1.5 = 122 per arm

1. Adjust for attrition (r): The study adjusted the sample size with an attrition rate of 10%.

Attrition rate, r = n/1-r = 122/1-10

= 122/ 0.9

= 136

Therefore, the study will use a final total of 136 participants as the minimum sample size per arm

**Data Collection Methods**

Data shall be collected using a questionnaire for both baseline and post-intervention. Monthly reports from the Community Volunteers shall also be collected. The data shall be collected using the Kobo Collect toolkit (Das, 2024). This tool will be employed because data can be collected offline, as some communities are likely not to have internet connectivity (Das, 2024; Nampa et al., 2020). Data collected can be monitored in real-time (Das, 2024). This web application shall be downloaded and installed on Android phones of all those involved in data collection. Four assistant investigators shall be trained for two days to assist with the data collection. Their training will cover how to use the Kobo Collect toolkit, administering a consent form, keeping all information collected safe, ensuring confidentiality of respondents’ information, and the art of orally administering the questionnaire. All information collected will be password protected. Respondents will have codes, hence their names will not be used. The principal researcher, the Eastern Region Health Promotion Officer, and a data analyst shall facilitate this training.

The questionnaire for objectives 1 and 2 (Knowledge and attitude) shall be adapted from InfoNTD, (2024). The toolkit was purposely designed for leprosy but has been adapted to suit the other NTDs. The adapted questionnaire has three sections: sections A-C. Section A collects information on the background of respondents. The background information includes the name of the district, area of residents, either rural or urban, name of the village/community, distance to the nearest health facility, length of volunteering in years, address, age, sex, occupation, highest level of education, monthly household income, number of dependents, marital status, and religion. In all, there are 14 questions.

Sections B and C shall collect information on respondents’ knowledge and attitudes about leprosy, Buruli ulcer, lymphatic filariasis, Yaws, Scabies, and Schistosomiasis. Each NTD will have separate questions on knowledge and attitude. Leprosy has 11 items measuring knowledge and 14 Likert scale items measuring attitude. In addition, there is a scenario on volunteers’ attitudes towards leprosy patients. This asks seven questions.

Nine items measure the knowledge level of volunteers on Buruli ulcer. Seven Likert scale questions assess the attitude of volunteers on Buruli ulcer case detection and referral. Eight items for lymphatic filariasis will be used to determine volunteers’ knowledge. Seven Likert scale questions shall be used to assess the attitude towards lymphatic filariasis detection and referral. There shall be seven questions when assessing volunteers’ knowledge about Yaws. Eight Likert scale questions will determine their attitude towards Yaws detection and referral. Knowledge of scabies shall be measured using nine questions. Nine questions shall be used to measure the attitude of volunteers toward scabies detection and referral. Knowledge and attitude on Schistosomiasis will be assessed using an adapted tool from (Klinker et al., 2023) and toolkit from InfoNTD, (2024). There are eight questions assessing knowledge and nine Likert -items assessing attitude.

Section D, which measures the third objective, seeks information about the factors associated with adoption and implementation of training and the identification and referral of NTD patients among the intervention group. Areas considered include the training venue, training delivery, training materials, and personal factors of the community-based volunteers. There are 10 Likert-scale questions on the adoption of the lessons learned. These were adapted from Kirkpatrick’s model of evaluating training programs (D. L. Kirkpatrick & J. D. Kirkpatrick, 2009). There are, therefore, a total of 20 items for assessing objective 3.

The fourth objective, section E, which concerns community-based volunteers identifying and referring NTD patients, will be assessed by collecting data on the actual NTDs. Baseline data on the targeted NTDs will be collected from the subdistrict and district health administrations. The adapted questionnaire will be pre-tested in a district that will not be selected for the study but meets the inclusion criteria. Although the tools have been adapted from validated sources, validity and reliability must be ensured in the context of the Eastern region of Ghana.

**Data Analysis**

Data will be cleaned and analyzed using the R software. Descriptive analysis will summarize demographics (Lar et al., 2023). Measures like mean, median, and standard deviation will be calculated. Demographic analysis will identify biases and inform subgroup analysis.

Knowledge levels will be classified as low (<50%), moderate (50–79%), and high (≥80%) (Adjei et al., 2025; Kamal et al., 2013; Tobin-West & Briggs, 2015). Volunteers with low scores at baseline will receive extra training (Ghatasheh, 2015). Contingency tables and bar charts will be used to compare knowledge levels before and after training for both control and intervention groups. Chi-square and Bowker’s tests will be used to assess changes and group differences. Fisher’s exact test will be used for small data sets. Cohen’s *w* will measure effect size. Multinomial logistic regression will be performed for covariates (Ismail et al., 2020; Labetubun et al., 2022).

Volunteers’ attitudes toward identifying and referring NTDs will be measured using a 5-point Likert scale: strongly disagree, disagree, neutral, agree, and strongly agree. These responses will be recategorized into low (poor), moderate, and high (acceptable) attitude groups (Ghatasheh, 2015). Descriptive analysis will utilize contingency tables to compare the control and intervention groups at both the pre-training and post-training stages. Combined tables will also assess changes in attitude within and between groups. Bar charts will visually present attitude distribution before and after the intervention.

Inferential analysis will include chi-square tests to determine statistically significant associations between training and attitude improvement (Ismail et al., 2020). For within-group changes, McNemar’s test will be used after reclassifying attitudes into binary categories (low/moderate vs. high). Cross-tabulation will examine the relationships between demographic factors and attitude levels. Logistic regression will control for confounders and identify predictors of high or low attitudes. Statistical significance will be set at p < 0.05.

To analyze factors associated with the adoption and implementation of training, frequencies and percentages will be used to summarize categorical responses. The median and interquartile range will be used to describe Likert-scale data. Bivariate analysis will examine links between training environment, delivery, materials, personal factors, and NTD training adoption. Chi-square will test categorical associations. The Mann-Whitney U or Kruskal-Wallis test will be used to analyze ordinal outcomes. Multivariable logistic regression will identify predictors for binary outcomes. Ordinal logistic regression will be used for ordinal variables. Significant factors will be reported with adjusted odds ratios and 95% confidence intervals. Tables and figures will highlight key results and main factors influencing NTD training adoption and implementation.

For the fourth objective, baseline and post-training NTD case findings by volunteers will be analyzed. This will assess the effectiveness of training in case detection, referral, and sustained volunteer involvement. Bar charts will visualize baseline cases and district distributions for both groups. After training, a descriptive analysis of the NTD cases seen at 3, 6, 9, and 12 months will be conducted to compare the intervention and control groups. McNemar’s test will check within-group changes. The chi-square test will compare case detection between groups. Multivariable logistic regression will predict correct case identification and referral, adjusting for demographics and other factors.

# **DISSEMINATION OF RESULTS**

The findings from the study shall be widely disseminated. Apart from publishing the findings in peer-reviewed journals, there shall be either poster or oral presentations at public health conferences. The findings of the study shall also be presented to the Regional Director of Health Services, Eastern region. A request will be made to present the findings at the annual review meeting of the region. At the annual review meetings of the districts where the study will be conducted, the findings shall be presented with their permission. At the community durbars, there will be short presentations of the findings to encourage the opinion leaders as well as the volunteers to continue supporting surveillance activities on NTDs. Additionally, the findings of the study shall be presented to the scientific community of the University of Port Harcourt, Nigeria.

# **ETHICAL ISSUES**

**Ethical Approval**

This study will obtain ethical approval from the Ghana Health Service, Dodowa Health Research Centre Institutional Review Board (GHS-DHRCIRB). The GHS-DHRCIRB is responsible for ensuring that the research to be conducted among volunteers meets ethical standards and protects the rights and welfare of respondents. The ethical approval process will involve submitting the research proposal, informed consent forms, and other relevant documents as required to the GHS-DHRCIRB for review.

The GHS-DHRCIRB’s ethical approval shall ensure that this study complies with national and international ethical guidelines, including the Declaration of Helsinki and the International Conference on Harmonization-Good Clinical Practice (ICH-GCP) (WHO, 2005; World Medical Association, 2025). The approval will also confirm that the study’s benefits outweigh the risks and that the rights and welfare of respondents are protected.

Prior to the approval for the study by the GHS-DHRCIRB, approval will be obtained from the Institutional Review Board of the University of Port Harcourt, Nigeria. By obtaining ethical approval from both the GHS-DHRCIRB and the University of Port Harcourt, this study shall demonstrate its commitment to upholding ethical standards and ensuring the integrity of the research.

**Informed Consent Information**

I wish to inform you of your rights and responsibilities as a participant in a research study titled “Effect of Training of Volunteers on Identification and Referral of Neglected Tropical Diseases Patients in Eastern Region, Ghana.” My name is Boaz Ahulu. I am a PhD candidate in Epidemiology at the University of Port Harcourt, Nigeria, under the supervision of Prof. Yeetey Enuameh. This research study is solely for academic purposes. The study shall last for one year.

The rationale for this study is to assess the effect of the training program on volunteers’ ability to conduct NTD surveillance in the community. The study aims to assess the knowledge and attitude of community-based volunteers who perform NTD surveillance activities before and after the training program. Thus, you can be rest assured that your participation in this study is strictly voluntary, and you have every right to withdraw whenever you feel like it, without any consequences whatsoever. Your decision to participate or withdraw will not affect your relationship with any health facility, staff, or any opinion leader in your community.

The study involves responding to a questionnaire, participating in a training program, or taking part in all of these. The survey questionnaire will ask questions about your knowledge and attitude toward performing NTD surveillance activities. The training program will provide you with the information and skills necessary for NTD surveillance activities.

All your responses will remain anonymous, and your name and other identifying information will not be connected to your answers. All data collected will be kept and used solely by the researcher and members assisting him in the research process. No harm or other risks are expected while being involved in this research. However, you may experience some fatigue during the training program. Be assured that this training will adapt to the adult learning style.

Your participation in this study may contribute to evaluating the work of community-based volunteers in controlling NTD in the Eastern Region. It will also help assess a training program aimed at improving the ability of community-based volunteers to perform NTD surveillance activities. The findings of this study may inform future training programs and improve the overall quality of NTD surveillance activities. It will take about 25 minutes of your time to finish answering the questions. After 3 months, I will meet with you for an update on the study and collect other information from you.

If you have any questions or concerns about this study, please contact Mr.Boaz Ahulu on 0205214000 or Prof. Yeetey Enuameh on 0244366662. Thank you.

**ASSENT FORM**

I acknowledge that I have received comprehensive information about this research study, including its objectives, methodology, potential risks, and possible benefits. I have been given sufficient opportunity to seek clarification on any aspects of the study, and all my inquiries have been satisfactorily addressed. I am fully aware that my participation in this research is entirely voluntary, and I may decline to take part without forfeiting any benefits or services to which I am normally entitled. Should I choose to participate, I understand that I retain the right to discontinue my involvement at any point during the study without penalty or negative consequences. I recognize that all data and information gathered during this research will be handled with strict confidentiality and in accordance with applicable privacy protection standards. Having been thoroughly informed and having had my questions answered, I voluntarily consent to participate in this study. Upon signing this document, I will be provided with a duplicate copy of this consent form for my records*.*

Name of Participant: ………………………………………………………………………

Signature or Right Thumb Print (participant) ……………………………………

Date: ……./……./……..

Name of Translator: ……………………………………………………………………………

Signature or Right Thumb Print (Translator) ………………………………………………

Date: ……./……./……..

The information was translated to the participant in the language the participant understands.

Name of Witness: ………………………………………………………………………………

Signature or Right Thumb Print ……………………………………

Date: ……./……./……..

Study personnel

I have adequately informed the participant of the purpose, procedures, risks and benefits of this study. I have answered all questions to the best of my ability.

Name of study personnel: …………………………………………………………………

Signature…………………………………… Date: ……./……./……..

# **BUDGET**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Category** | **Item** | **Quantity** | **Unit\_Cost (GHc)** | **Total\_Cost (GHc)** | **Justification** |
| Personnel | Lead Researcher (monthly activities) | 12 | 200 | 2400 | Overall project supervision, coordination, and quality assurance of research activities |
| Personnel | Regional Health Promotion Officer (6 days/month) | 6 | 200 | 1,200 | Leads health promotion training and community engagement activities |
| Personnel | Regional Disease Surveillance Officer (6 days/month) | 6 | 200 | 1,200 | Coordinates disease surveillance and reporting systems across the region |
| Personnel | Regional Focal Person for NTDs (6 days/month) | 6 | 200 | 1,200 | Ensures integration with existing NTD programs and protocols |
| Personnel | District Disease Surveillance Officers (4 from the intervention districts) | 12 | 200 | 2,400 | Conduct surveillance activities and data collection at district level. Each will support training activities |
| Personnel | Research Assistants (4) | 8 | 200 | 1,600 | Primary data collectors and field implementation team |
| TOTAL FOR PERSONNEL | | | | **10,000** |  |
| Training Materials | Notebooks (50 pages) | 140 | 10 | 1,400 | Essential for participants to take notes during training sessions |
| Training Materials | Pens (Blue) | 140 | 1 | 140 | Required for completing forms and taking notes |
| Training Materials | Folders | 140 | 10 | 1,400 | Organization and storage of training materials and handouts |
| Training Materials | Flip Charts | 4 | 100 | 400 | Visual aid for effective training delivery |
| Training Materials | Markers (Pack of 12) | 10 | 20 | 200 | Required for writing on flip charts during presentations |
| Training Materials | Handouts/Printouts | 140 | 30 | 4,200 | Reference materials for participants during and after training |
| Training Materials | Name Tags | 140 | 20 | 2,800 | Identification and security during training sessions |
| Training Materials | Venue Rental | 12 | 200 | 2,400 | Space for conducting training sessions |
| Training Materials | Water (500ml) | 672 | 3 | 2,016 | Hydration for participants during training sessions |
| Training Materials | Snacks/Refreshments | 140 | 15 | 2,100 | Maintain participant engagement during long sessions |
| Training Materials | Document Translation from English to Twi language | 1 | 2000 | 2,000 | Ensure materials are accessible in local languages |
| TRAINING MATERIALS TOTAL | | | | **19,056** |  |
| Data Collection | Questionnaire design for Kobo Collect | 1 | 1000 | 1,000 | Enable electronic data collection |
| Data Collection | Health Facility Forms | 50 | 3 | 150 | Specific forms for health facility data collection |
| Data Collection | Consent Forms | 140 | 1 | 140 | Ethical requirement for research participation |
| Data Collection | Rain Coats | 8 | 100 | 800 | Protection during adverse weather conditions |
| Data Collection | Field ID Cards | 8 | 30 | 240 | Official identification for field staff |
| DATA COLLECTION TOTAL | | | | **2,330** |  |
| Field Work | T-shirts with NTD images | 140 | 50 | 7,000 | Team identification and project visibility |
| Field Work | Caps with Project Logo | 140 | 20 | 2,800 | Field team identification and sun protection |
| Field Work | Field Notebooks | 140 | 15 | 2,100 | Recording field observations and notes |
| Field Work | Pens and Pencils | 306 | 5 | 1,530 | Essential tools for field documentation |
| Field Work | Community Entry Protocols | 8 | 400 | 3,200 | Standardized procedures for community engagement |
| Field Work | Information Leaflets | 500 | 20 | 10,000 | Community education and awareness materials |
| Field Work | Educational Posters | 200 | 20 | 4,000 | Visual aids for community education |
| Field Work | Community Announcements | 12 | 100 | 1,200 | Community mobilization and engagement |
| Field Work | Community Volunteer Allowance | 140 | 200 | 28,000 | Support for community-based activities |
| FIELD WORK TOTAL | | | | **59,830** |  |
| Miscellaneous | Field Team Transport (4 teams) | 56 | 20 | 1,120 | Transportation to field sites for data collection |
| Miscellaneous | Supervisor Monitoring Visits | 12 | 300 | 3,600 | Quality assurance and supervision |
| Miscellaneous | Community Entry Visits | 12 | 100 | 1,200 | Initial community engagement and permissions |
| Miscellaneous | Emergency Transport Fund | 3 | 300 | 900 | Handle unexpected transportation needs |
| Miscellaneous | Airtime for Field Teams | 8 | 100 | 800 | Communication between field teams |
| Miscellaneous | Internet Data for Tablets | 8 | 300 | 2,400 | Data upload and communication |
| Miscellaneous | Office Supplies | 4 | 300 | 1,200 | Administrative support materials |
| Miscellaneous | Printing and Photocopying | 100 | 1 | 100 | Documentation and reporting |
| Miscellaneous | Report Production | 2 | 1000 | 2,000 | Final project documentation |
| MISCILLANEOUS TOTAL | | | | **13,320** |  |
| **GRAND TOTAL** | | | | **104,536** |  |

# **TIMELINES OF ACTIVITIES**



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# **APPENDICES**

# **APPENDIX A: QUESTIONNAIRE ON NTDs FOR VOLUNTEERS**

# **(KNOWLEDGE, ATTITUDE, TRAINING ASSOCIATED FACTORS)**

The questionnaire comprises questions on knowledge and attitude on Leprosy, Buruli ulcer, lymphatic filariasis, yaws, and scabies. It also include factors associated with training the community-based volunteer on NTDs.

|  |  |  |
| --- | --- | --- |
| **Date of the interview:** | **Name of Researcher/Assistant:** | |
| **Consent Given:** | **Yes:** Continue with questionnaire  No: Don’t administer questionnaire. Skip to the end of questionnaire and thank respondent | |
|  |  | |
| **Section A: Background information** | | |
| **District name:** | **Area of residence:** Rural / Urban | |
| **Village name:** | Distance to the nearest health facility:  a. <5 km b. 6-10 km c.11-20 km d. >20 km | |
| **Respondent Code No.:** | Length of Time (years) Volunteering in NTD Detection:  a. 1  b. 2  c. 3  d. 4  e. 5  f. 6  g. 7  h. 8 years and above | |
| **Address:** | **Age:** | **Sex:**   1. Male 2. Female |
| **Occupation:** □ Paid work  □ Self-employed (e.g. own business/farming)  □ Non-paid work or student  □ Retired  □ Unemployed  □ Other......................................... | **Highest education completed:** □ Illiterate  □ Can read and write but no formal education  □ Primary school completed  □ Secondary school completed  □ Higher education completed | |
| **Monthly household income in GHc**   * Up to 100 * Up to 200 * Up to 500 * Up to 1000 * Up to 2000 * Above 2000 | **Number of Dependents:**   * **1** * **2** * 3 * **4** * **5** * **6** * **7** * **8 +** | |
| **Marital status:** □ Never married  □ Married  □ Separated  □ Divorced  □ Widowed  □ Co-habiting | **Religion:** □Pagan  □ Buddhism  □ Christianity  □ Islam  □ Other, please specify: | |

Section B: Questions measuring the knowledge and attitude of volunteers

Knowledge about Leprosy

**note:**

* Please tick or circle the preferred answer option(s)**.**
* The correct answers are indicated by a \*. If the correct answer is given, indicate this by circling the ‘1’ in the ‘points’ column. The total number of \* corresponds to the number of points (either 1, 2, 3, 4, 5 ….) under the points column.

|  |  |  |
| --- | --- | --- |
| This section of questionnaire is about the disease leprosy. | | Points |
|  | **What are the early symptoms of leprosy ?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * Itchiness * Skin patches\* * Wounds on the skin * Loss of sensation\* * Disabilities * Different, namely: ………. * Don’t know | 0 / 1 / 2 |
|  | **What causes leprosy?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * + Leprosy is caused by an unclean environment   + Leprosy is a divine punishment for sins   + Leprosy is God’s will   + Leprosy is a result of karma   + Leprosy is due to impure blood   + Leprosy is caused by witchcraft   + Leprosy is hereditary   + Leprosy is caused by immoral conduct   + Leprosy is caused by germs/bacteria\*   + Different, namely: ……….   + Don’t know | 0 / 1 |
|  | **How is leprosy transmitted?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously). Leprosy is transmitted by   * Air\* * Contaminated soil * Insects and mosquitoes * Sexual contact with a leprosy patient * Skin contact with a leprosy patient * Eating together with a leprosy patient * Shaking hands with a leprosy patient * Sharing personal items (towel, toothbrush etc.) with a leprosy patient * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **Can leprosy be prevented?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **If Yes, How Can leprosy be prevented?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with (preventive) medicines\* * by preventing contact with a patient * with medicinal herbs * through religious rituals * by isolating persons affected by leprosy * Different, namely: ……….   Don’t know | 0 / 1 |
|  | **Do you think leprosy can be cured completely?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **If yes, how can leprosy be cured?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with medicines\* * by avoiding taboo food * with medicinal herbs * through religious rituals * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **How long does it take to cure someone with leprosy?**   1. 1 month 2. 6 months 3. 1 year 4. It will never be cured 5. Different, namely: ………. 6. Don’t know | **0 / 1** |
|  | **Is leprosy still contagious after a patient has started treatment?**   * 1. Yes   2. No\*   3. Don’t know | 0 / 1 |
|  | **Can the disability that some patients have be prevented?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **Do your neighbours, colleagues or others in your community have less respect for you because of your illness?**   1. Yes 2. Not sure 3. No | **0 / 1** |
|  | **Total:** |  |

**Attitude scale A: for Leprosy disease**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | Yes | No | Not Sure | Score |
| 2 | 0 | 0 |  |
| **1** | Would you try to keep others from knowing you have leprosy? |  |  |  |  |
| **2** | If a member of your family had leprosy, would you think less of yourself, because of this person’s problem? |  |  |  |  |
| **3** | In your community, does leprosy cause shame or embarrassment? |  |  |  |  |
| **4** | Would you think less of a person with leprosy? |  |  |  |  |
| **5** | Would you avoid someone with leprosy in your community? |  |  |  |  |
| **6** | Would you visit the home of a person affected by leprosy? |  |  |  |  |
| **7** | Would you think less of the family of a leprosy patient in your community? |  |  |  |  |
| **8** | Would leprosy cause problems for the family? |  |  |  |  |
| **9** | Would a family have concern about disclosure if one of their members had leprosy? |  |  |  |  |
| **10** | Would you marry someone cured from leprosy? |  |  |  |  |
| **11** | Would you divorce your partner who is diagnosed of leprosy during marriage? |  |  |  |  |
| **12** | Would you allow your son/daughter marry someone with leprosy? |  |  |  |  |
| **13** | Would you employ a cured leprosy patient? |  |  |  |  |
| **14** | Would you buy food from a cured leprosy food vendor? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Attitude scale B: towards leprosy patients**Please read out the following (gender-specific) statement:

|  |  |
| --- | --- |
| **For men** | **For women** |
| Atta is a 23-year-old man. He has been treated for leprosy during the past year. The doctor has declared him cured, even though some of the fingers on his right hand are still bent and his skin is still dark, because of the treatment. Atta has a job in the local small business that belongs to his uncle. He earns GHc1,000 per month and is doing well in his job. He is a little bit slower than before, because of the effects of leprosy on his hand, but the employer never complained about that. At his job, Atta gets along well with his colleagues. Atta would like to get married. He is considering joining a local youth organization, so he can meet people of the same age. He also hopes to get a better job to be able to earn more than in his present job. | Akosua is a 27-year-old woman. She has been treated for leprosy during the past year. The doctor has declared her cured even though some of the fingers on her right hand are still bent and her skin is still dark because of treatment. Akosua has a job in the local small business that belongs to her uncle. She earns GHc1200 per month and is doing well in her job. She is a little bit slower than before, because of the effects of leprosy on her hand, but the employer never complained about that. At her job, Akosua gets along well with her colleagues. Akosua would like to get married. She is considering joining a local youth organization, so she can meet people of the same age. She also hopes to get a better job to be able to earn more than her present job. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | Definitely willing | Probably willing | Definitely not willing |  |
| 0 | 1 | 3 | Score |
| **1** | How would you feel about renting a room in your home to someone like <name>? |  |  |  |  |
| **2** | How about being a worker on the same job with someone like <name?? |  |  |  |  |
| **3** | How would you feel having someone like <name> as a neighbour? |  |  |  |  |
| **4** | How about having someone like <name> as caretaker of your children for a couple of hours? |  |  |  |  |
| **5** | How about having one of your children marry someone like <name>? |  |  |  |  |
| **6** | How would you feel about introducing <name> to a young woman you are friendly with? |  |  |  |  |
| **7** | How would you feel about recommending someone like <name> for a job working for a friend of yours? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Buruli Ulcer : Knowledge assessment**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture   * Buruli ulcer\* * Yaws * Leprosy * Don’t know | 0 / 1 |
| 2 | The disease is caused by witches, angry gods, curse   * Yes * No\* * Don’t know | 0 / 1 |
| 3 | Use the picture to identify which of the stages of buruli ulcer comes first:   * Nodule\* * Plague * Oedema * Ulcer * Don’t know | 0 / 1 |
| 4 | Which of the stages in the picture should be reported by the volunteer?   * Nodule * Plague * Oedema * Ulcer * All stages\* * Don’t know | 0 / 1 |
| 5 | Buruli ulcer is not painful   * Yes\* * No * Don’t know | 0 / 1 |
| 6 | Who can get Buruli ulcer?   * Children * Males * Females * Anybody\* * Don’t know * Others……….. | 0 / 1 |
| 7 | I am very confident Buruli ulcer can be transmitted to others directly   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Buruli ulcer can be prevented?   * Yes\* * No * Not sure * Don’t know | 0 / 1 |
| 9 | Buruli ulcer can be treated   * Yes\* * No * Not sure * Don’t know | 0 / 1 |
|  | Total |  |

**Buruli Ulcer: Attitude Questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | Do not get closer to Buruli ulcer patient because you will get it |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | I will report Buruli ulcer cases to the nearest clinic |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Buruli ulcer is best managed using herbs |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | All Buruli ulcer cases should be treated at hospital |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | I am confident I can identify Buruli ulcer case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | Start treating Buruli ulcer at home before reporting to the nearest clinic |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 7 | I will be uncomfortable referring the case to the nearest clinic for fear of being wrong. |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
|  | Total | | | | | |  |

**Knowledge questions on Lymphatic filariasis**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture (leg)   * Elephantiasis\* * Boil * Don’t know * Other ……………….. | 0 / 1 |
| 2 | Identify the disease using the picture (scrotum)   * Hydrocoele\* * Cancer * Don’t know * Other……………….. | 0 / 1 |
| 3 | How does one get this disease?   * Curse * Angry gods * Witches * Germs\* * Dirt * Don’t know * Others (specify)................. | 0 / 1 |
| 4 | Can this disease be transmitted?   * Yes\* * No * Direct body contact * Sex intercourse * Don’t know | 0 / 1 |
| 5 | If yes, how is this disease transmitted?   * Mosquito bite\* * Dirty hands * Contaminated food * Other……………………. | 0 / 1 |
| 6 | The best way to prevent this disease is   * Use mosquito net\* * Reduce number of stagnant water in community\* * Drink clean water * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 |
| 7 | Can this disease be cured?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Can someone with the swollen leg recover fully?   * Yes * No\* * Maybe * Don’t know | 0 / 1 |
|  | Total |  |

**Lymphatic Filariasis: Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | Do not get closer to elephantiasis patient because you will get it |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | I will report elephantiasis cases to the nearest clinic |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Elephantiasis is best managed using herbs |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | I will educate my community on elephantiasis |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | I am confident I can identify elephantiasis case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | I have to search and refer elephantiasis cases to the nearest clinic |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Elephantiasis can best be managed using mass drug administration |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Knowledge questions on Yaws**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture (Picture of Yaws here)   * Yaws\* * Leprosy * Don’ know * Other ……………….. | 0 / 1 |
| 2 | Can this disease be transmitted?   * Yes\* * No * Don’t know | 0 / 1 |
| 3 | How does one get this disease?   * Curse * Punishment from gods * Witches * Contact with the yaws ulcer\* * Sharing contaminated cloth\* * Houseflies\* * Germs\* * Mosquito bite * Contaminated food * Washing with dirty water * Punishment from God * Don’t know | 0 /1/2/3/4 |
| 4 | Adults (above 15 years) and children (15 years and below), in which of these groups can we find this disease more?   * Adults * Children\* * Don’t know |  |
| 5 | The best way to prevent this disease is   * Regular bathing\* * Reduce number of stagnant water in community * Drink clean water * Clean environment\* * Dress all ulcers\* * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 / 3 |
| 6 | Can yaws be cured completely?   * Yes\* * No * Don’t know | 0 / 1 |
| 7 | Yaws can be transmitted through sex   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Yaws: Questions on Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | I am willing to look for Yaws cases even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | I will report yaws cases to the nearest clinic even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yaws can be managed using herbs so there is no need to report to hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Prayer can cure yaws |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 5 | I will educate my community on yaws without being paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | I am confident I can identify yaws case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Persons with yaws should be allowed attend social gathering |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | I will visit the home of yaws patient without any fear |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Scabies: Knowledge questions on Scabies**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Identify the disease using the picture   * Scabies\* Patient education: Scabies (Beyond the Basics) - UpToDate * Leprosy * Eczema * Don’t know * Other ……………….. | 0 / 1 |
| 2 | What is the main symptom of this disease?   * Intense itching\* * Fever * Coughing * Don’t know * Other……………… | 0 / 1 |
| 3 | Can this disease be transmitted?   * Yes\* * No * Don’t know | 0 / 1 |
| 4 | How does one get this disease?   * Curse * Angry gods * Witches * Germs\* * Physical body Contact with affected person \* * Sharing contaminated cloth\* * Houseflies * Mosquito bite * Contaminated food * Don’t know * Other ……………………….. | 0 / 1 /2 /3 |
| 5 | Adults (above 15 years) and children (15 years and below), in which of these groups can we find this disease more?   * Adults\* * Children\* * Don’t know | 0 / 1 / 2 |
| 6 | The best way(s) to prevent this disease is   * Regular bathing\* * Regular hand washing\* * Reduce number of stagnant water in community * Drink clean water * Don’t share cloth\* * Don’t share same bed / beddings * Clean environment * Dress all ulcers\* * Eat clean and warm food * Pray to God * Avoid handshakes\* * Do not get closer to the one with the disease\* * Don’t know * Other………………………………………………. | 0 / 1 / 2 / 3 /4 / 5 / 6 |
| 7 | Can scabies be cured completely?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Scabies can be transmitted through sexual activity   * Yes\* * No * Don’t know | 0 / 1 |
| 9 | I can confidently identify scabies disease   * Yes\* * No * Not sure | 0 / 1 |
|  | Total |  |

**Scabies: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  agree | agree | Neutral/  Don’t Know | Disagree | Strongly  disagree | Score |
| 1 | I am willing to look for Scabies cases even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | I will report Scabies cases to the nearest clinic even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Scabies can be managed using herbs so there is no need to report to hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | I will educate my community on Scabies without being paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Prayer can cure scabies |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | I am confident I can identify Scabies case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Persons with Scabies should not be allowed to attend social gathering |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | I will visit the home of Scabies patient without any fear |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Knowledge questions on Schistosomiasis**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Who can get schistosomiasis?   * Males only * Females only * Don’t know * Both males and females\* ……………….. | 0 / 1 |
| 2 | How does one get schistosomiasis disease?   * Any contact with stream\* * Swimming in the river / stream\* * Drinking the water * Cooking with the water * Witches * Houseflies * Eating red sugar cane * Eating almond nut * Curse * Mosquito bite * Contaminated food * Punishment from God * Punishment from the gods * Eating snail in the river * Don’t know * Through sex * Others: ………………………………………….. | 0 / 1 / 2 |
| 4 | Can schistosomiasis be treated?   * Yes\* * No * Don’t know | 0 / 1 |
| 5 | The best way to prevent this disease is   * Regular bathing * Reduce number of stagnant water in the community * Drink clean water * Don’t eat almond nut * Don’t eat red sugar cane * Clean environment * Do not swim in the stream / river\* * Do not have sex * Eat clean and warm food * Do not get closer to the one with the disease * Wear wellington boots when working in water-logged area\* * Don’t know * Other……………………. | 0 / 1 / 2 |
| 7 | Schistosomiasis can be transmitted through sex   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Herbs can cure schistosomiasis better than hospital medication   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Schistosomiasis: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Strongly  Agree (SA) | Agree (A) | Neutral/  Don’t Know (N) | Disagree  (D) | Strongly  Disagree  (SD) | Score |
| 1 | I am willing to look for Schistosomiasis cases even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | I will report Schistosomiasis cases to the nearest clinic even if I am not paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Schistosomiasis can be managed using herbs so there is no need to report to hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | I will educate my community on Schistosomiasis without being paid |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Prayer can cure schistosomiasis |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | I am confident I can identify Schistosomiasis case |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Persons with Schistosomiasis should not be allowed to attend social gathering |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | I will visit the home of Schistosomiasis patient without any fear |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 9 | I will buy food from a schistosomiasis patient who sells food. |  |  |  |  |  | (SA,A=1; N,D,SD=0) |

**Section C: Factors Associated with Adoption and Implementation of training Community-based volunteers in identification and referral of NTD patients among the intervention Group**

This section seeks information about the factors associated with adoption and implementation of training community-based volunteers on NTD cases and referrals. Areas considered include the training venue, training delivery, training materials, and personal factors of the community-based volunteers.

**Training Venue or Environment**

1. Were you comfortable at the venue where you were trained on the NTDs?
   1. Yes
   2. No
2. Was the time for training convenient for you?
   1. Yes
   2. No
3. Was the duration of training you on the various NTDs enough for you?
   1. Yes, it was perfect for me
   2. No, it was too short
   3. No, it was too long

**The Training Delivery**

1. Were you comfortable with the language (Akuapem/Asante) used to train you on the NTDs?
   1. Yes
   2. No
2. Did the trainers explain the information about the NTDs and how to detect and refer them, to your understanding?
   1. Yes
   2. No
3. Were the practical sessions on the NTDs detection, referral, and completing of the forms helpful for you?
   1. Yes, it was perfect for me
   2. Yes, but he rushed through
   3. No, it was not helpful

**Training Materials**

1. Which of the following helped you most to understand the information on the NTDs? (You may select all that apply)
   1. Pictures
   2. Videos
   3. Demonstrations
   4. Role play
   5. Discussion
2. Was the information in the training manual easy to understand?
   1. Yes
   2. No

**Personal Factors**

1. Can you read the information in the training manual?
   1. Yes, I can read and understand
   2. Yes, I can read, but I do not understand
   3. No, I cannot read
   4. No, I want it to be in the local language
2. What do you think will help you learn better?
   1. I need more practical sessions
   2. I need more pictures
   3. I need to watch more videos
   4. I need more time to practice
   5. Others (specify)

**Adoption of training information**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Construct** | **Response scale (Circle the right option)** | | | | |
| 11 | How is the training on NTD you have received better than the previous ones you have had? | Much worse | Somehow worse | same | Somehow better | Much better |
| 12 | How well does the NTD training content fit with your already existng knowledge and skills on NTDs as a community volunteer? | Very poor | Poor fit | Moderate fit | Good fit | Very good fit |
| 13 | How often are you able to practice the NTD detection skills you learned in training? | Never | Rarely | Sometimes | Often | Very Often |
| 14 | How visible are the benefits of your NTD training to other community members? | Not visible | Slightly visible | Moderately visible | Clearly visible | Very visible |
| 15 | How often does your peers support you in applying what you learned in NTD training? | Never | Rarely | Sometimes | Often | Very Often |
| 16 | What barriers prevent you from fully applying your NTD training in your community work? | Time constraints | Resources limitation | Lack of support | Community resistance | No transport |
| 17 | What factors help you successfully apply your NTD training in your community work? | Adequate resources | Strong community support | Support from the trained nurses / officers | Clear procedures | Regular practice |
| 18 | How relevant is the NTD training content to your actual community volunteer duties? | Not relevant | Slightly relevant | Moderately relevant | Very relevant | Extremely relevant |
| 19 | How much has the NTD training improved your performance as a community volunteer? | Much worse | Somewhat worse | No change | Somewhat better | Much better |
| 20 | How much support do you receive from supervisors for applying your NTD training? | No support | Little support | Some support | Good support | Excellent support |

# APPENDIX C: QUESTIONNAIRE ON NTDs FOR VOLUNTEERS (KNOWLEDGE, ATTITUDE, TRAINING ASSOCIATED FACTORS) TRANSLATED INTO THE TWI LANGUAGE

Nsɛmmisa ahorow a ɛwɔ krataa yi so no fa nimdeɛ ne suban a yɛda no adi wɔ wɔn a wɔwɔ Kwata, Buruli ulcer, gyepim, gyatɔ, dwonsɔ mogya, ne Nkoronsankoransa ho. Ɛsan nso bisa nsɛm a ɛfa sɛnea wɔtetee volunteers ho.

|  |  |  |
| --- | --- | --- |
| Date of the interview: | Name of Researcher/Assistant: | |
| Wogye tom sɛ wo be bua nsɛmisa a edidi so yi anaa: | Yiw: Toa so bisa no nsɛm no  Dabi: Mmisa no hwee bio | |
|  |  | |
| Ɔfa **A:** Woho Nsɛm | | |
| **District name:** | **Area of residence:** Akuraase / Kurow kɛse mu | |
| **Village name:** | Distance to the nearest health facility:  a. <5 km b. 6-10 km c.11-20 km d. >20 km | |
| **Respondent Code No.:** | Bere tenten a wode atu ho wo ama: Afe:  a. 1  b. 2  c. 3  d. 4  e. 5  f. 6  g. 7  h. mfe 8 ne akyiri | |
| **Address:** | **Age:** | **Sex:**   1. Male 2. Female |
| **Adwuma a woy**ɛ  **(Occupation):** □ Meyɛ obi adwuma gye akatua  □ Meyɛ m’ankasa adwuma (e.g. own business/farming)  □ Mennyɛ adwuama biara anaa meyɛ sukuuni  □ Mapɔn adwuma (makɔ retae)  □ Minni adwuma  □ Biribi foforo.................................... | **Mp**ɛnpɛnso **a wok**ɔɔ **sukuu kodui**  **(Highest education completed):** □ Mintumi nkan ade biara  □ Mitumi kan nanso mankɔ sukuu  □ Mekɔ mfiase sukuu  □ Miwiee ntoaso sukuu  □ Mekɔɔ asuapɔn | |
| **Anyɛ yiyie koraa, sika dodow ahe na wunya wɔ bosome baako mu**? **GHc**   * Up to 100 * Up to 200 * Up to 500 * Up to 1000 * Up to 2000 * Above 2000 | **Nnipa dodow a wohwɛ wɔn wɔ wo fie:**   * **1** * **2** * 3 * **4** * **5** * **6** * **7** * **8 +** | |
| **Aware ho nsɛm:** □ Menwaree da  □ M’aware  □ Matetew mu  □ Magyae aware  □ Mey**ɛ** okunafo  □ Me ne obi te nso yɛn waree | **Wowɔ ɔsom bɛn mu?:** □Menkɔ asɔre  □ Budasom  □ Kristoni  □ Kramoni  □ Other, please specify: | |

**Ɔfa B: Nsɛmmisa a ɛsusu volunteers nimdeɛ ne wɔn suban anaa sɛnea wɔyɛ wɔn ade fa wɔn a wɔwɔ Kwata yare ho**

**note:**

* Please tick or circle the preferred answer option(s)**.**
* The correct answers are indicated by a \*. If the correct answer is given, indicate this by circling the ‘1’ in the ‘points’ column. The total number of \* corresponds to the number of points (either 1, 2, 3, 4, 5 ….) under the points column.

|  |  |  |
| --- | --- | --- |
| Ɔfa yi bisa nsɛm fa Kwata yare ho nkutoo. | | Points |
|  | **Dɛn ne kwata yareɛ no mfiaseɛ nsɛnkyerɛne**?  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * Itchiness * Skin patches\* * Wounds on the skin * Loss of sensation\* * Disabilities * Different, namely: ………. * Don’t know | 0 / 1 / 2 |
|  | **D**ɛn na ɛde kwata ba**?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * + Leprosy is caused by an unclean environment   + Leprosy is a divine punishment for sins   + Leprosy is God’s will   + Leprosy is a result of karma   + Leprosy is due to impure blood   + Leprosy is caused by witchcraft   + Leprosy is hereditary   + Leprosy is caused by immoral conduct   + Leprosy is caused by germs/bacteria\*   + Different, namely: ……….   + Don’t know | 0 / 1 |
|  | **Ɔkwan bɛn so na obi nya Kwata yareɛ?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously). Leprosy is transmitted by   * Air\* * Contaminated soil * Insects and mosquitoes * Sexual contact with a leprosy patient * Skin contact with a leprosy patient * Eating together with a leprosy patient * Shaking hands with a leprosy patient * Sharing personal items (towel, toothbrush etc.) with a leprosy patient * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **So yebetumi abɔ yɛn ho ban afi Kwata yare ho anaa?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **Sɛ wogye tom sɛ yebetumi abɔ yɛn ho ban afi kwata yare ho a, ɛnde ɔkwan bɛn so na yebetumi ayɛ saa?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with (preventive) medicines\* * by preventing contact with a patient * with medicinal herbs * through religious rituals * by isolating persons affected by leprosy * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **So yebetumi asa Kwata yare ama akɔ koraa?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **Yɛbɛyɛ dɛn asa Kwata yare?**  (Multiple answers possible. Do not suggest answers, just tick the answers given by the interviewee spontaneously)   * with medicines\* * by avoiding taboo food * with medicinal herbs * through religious rituals * Different, namely: ………. * Don’t know | 0 / 1 |
|  | **Bere tenten ahe na obi a ɔwɔ kwata bɛnom aduru ansa na ne ho atɔ no koraa?**   1. 1 month 2. 6 months 3. 1 year\* 4. It will never be cured 5. Different, namely: ………. 6. Don’t know | **0 / 1** |
|  | **Sɛ obi nom aduru no wie koraa a, so obetumi de kwata yare no asane obi anaa?**   * 1. Yes   2. No\*   3. Don’t know | 0 / 1 |
|  | **So nnipa dua mu dɛm a kwata de ba obi so no, yebetumi asi ano anaa?**   * 1. Yes\*   2. No   3. Don’t know | 0 / 1 |
|  | **So wafipamfo, wo namfonom, ne afoforo a wɔte wo mpɔtam no, wɔwɔ obu ma obi a ɔwɔ Kwata yare anaa?**   1. Yes\* 2. Not sure 3. No | **0 / 1** |
|  | **Total:** |  |

**Suban a Wɔda no adi kyerɛ wɔn a Wɔwɔ Kwata yare**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | Aane  (Yes) | Dabi  (No) | Mentumi nkyerɛ  (Not Sure) | Score |
| 2 | 0 | 0 |  |
| **1** | So wobɛbɔ mmɔden sɛ worenmma obi nhu sɛ wowɔ kwata yare anaa? |  |  |  |  |
| **2** | Sɛ wobusuani bi nya Kwata a, wobebu no sɛ ɔnnyɛ onipa biara anaa onipa hunu? |  |  |  |  |
| **3** | Wɔ beae a wote no, sɛ obi nya kwata a, so ɛyɛ animguase ma no anaa? |  |  |  |  |
| **4** | Wo ankasa no, sɛ obi nya kwata a, wobebu no sɛ ɔyɛ onipa hunu anaa? |  |  |  |  |
| **5** | So wobɛtwe wo ho afi obi a ɔwɔ kwata ho wɔ kurow a wote mu no anaa? |  |  |  |  |
| **6** | So wobɛkɔ obi a ɔwɔ kwata fie anaa? |  |  |  |  |
| **7** | Nea ɔwɔ kwata yare no, wubu n’abusuafo sɛ wɔba fam anaa wɔn ho nhia anaa? |  |  |  |  |
| **8** | So kwata betumi de nsunsuanso bɔne biara aba abusua no mu anaa? |  |  |  |  |
| **9** | So ɛbɛhaw so sɛ wobɛma afoforo ahu sɛ w’abusuani wɔ kwata yare anaa? |  |  |  |  |
| **10** | Wobɛware obi a bere bi na ɔwɔ kwata a wasa no yare ama ne ho atɔ no anaa? |  |  |  |  |
| **11** | Sɛ wo hokafo nya kwata a, wobegyaa no anaa? |  |  |  |  |
| **12** | Wobɛma kwan ma woba baa anaa woba barima aware obi a Wanya kwata anaa? |  |  |  |  |
| **13** | So wobɛfa obi a Wanya kwata pɛn a ne ho atɔ no wɔ w’adwuma mu anaa? |  |  |  |  |
| **14** | Wobɛtɔ aduan wɔ obi a ɔtɔn aduan a w’anya kwata pɛn hɔ anaa? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Attitude scale B: towards leprosy patients**Please read out the following (gender-specific) statement:

|  |  |
| --- | --- |
| **Mmarima Nkutoo (For men)** | **Mmaa Nkutoo (For women)** |
| Ata adi mfe 23. Afe a etwaa mu no, wɔsaa ne kwata yare no ma ne ho tɔɔ no. Ewom sɛ ne nnipa dua akwaa bi te sɛ ne nsa atwitwa esiane kwata no nti de, nanso Dɔkota sɛ ne ho atɔ no. Ata ne ne wɔfa na ɛyɛ adwuma. Adwuma no kɔ yiye na bosome biara wotua no GHc1,000. Ɛwom sɛ ne ho nnyɛ hare esiane ne kwata a onyae no nti, nanso ɛnhaw ne wɔfa no koraa. Ata ne afoforo a wɔwɔ adwuma mu nyinaa bom yɛ biribiara bom na wɔn anigye. Ata pɛ sɛ ɔware. Ata resusuw ho sɛ ɔde ne ho bɛdɔm mmabun kuw bi sɛnea ɛbɛyɛ a obehyia n’atipɛnfo. Afei nso ɔpɛ sɛ onya adwuma a n’akatua ye sen nea ɔreyɛ no mprenpren yi. | Akosua adi mfe 27. Afe a etwaa mu no, wɔsaa ne kwata yare no ma ne ho tɔɔ no. Ɛwom sɛ ne nnipa dua akwaa bi te sɛ ne nsa atwitwa esiane kwata no nti de, nanso Dɔkota sɛ ne ho atɔ no. Akosua ne ne wɔfa na ɛyɛ adwuma. Adwuma no kɔ yiye na bosome biara wotua no GHc1,000. Ɛwom sɛ ne ho nnyɛ hare esiane ne kwata a onyae no nti, nanso ɛnhaw ne wɔfa no koraa. Akosua ne afoforo a wɔwɔ adwuma mu nyinaa bom yɛ biribiara bom na wɔn anigye. Akosua pɛ sɛ ɔware. Akosua resusuw ho sɛ ɔde ne ho bɛdɔm mmabun kuw bi sɛnea ɛbɛyɛ a obehyia n’atipɛnfo. Afei nso ɔpɛ sɛ onya adwuma a n’akatua ye sen nea ɔreyɛ no mprenpren yi. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item | | ɔkwan biara so mɛyɛ (Definitely willing) | Ebia mɛyɛ (Probably willing) | Merenyɛ biribi saa da (Definitely not willing) |  |
| 0 | 1 | 3 | Score |
| **1** | Sɛn na wobɛte nka, sɛ wode wodan bɛ haee obi te sɛ....... (Edin) |  |  |  |  |
| **2** | Sɛn na wobɛte nka, sɛ wone obi te sɛ......... bɛyɛ adwuma abom? |  |  |  |  |
| **3** | Sɛn na wobɛte nka, sɛ wone obi te sɛ......bɛtena sɛ wo fipamfo? |  |  |  |  |
| **4** | Sɛn na wobɛte nka, sɛ wobɛma obi te sɛ......... bɛhwɛ wo mma ama wo bere tenten bi? |  |  |  |  |
| **5** | Sɛn na wobɛte nka, sɛ wobɛma obi te sɛ......... bɛware wo ba barima anaa woba bea? |  |  |  |  |
| **6** | Sɛn na wobɛte nka, sɛ wode obi te sɛ......... bekyia w’adamfo bere a woahyia no ..........? |  |  |  |  |
| **7** | Sɛn na wobɛte nka, sɛ wobɛ kamfo obi te sɛ......ama w’adamfo bi na wayɛ adwuma ama no? |  |  |  |  |
|  | Total Score |  |  |  |  |

**Buruli Ulcer : Knowledge assessment**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn ho mfoni na wuhu yi?   * Buruli ulcer\* * Yaws * Leprosy * Don’t know | 0 / 1 |
| 2 | Saa yare a ɛwɔ mfoni yi mu no, abayifo, duabɔ, anaa nananom abosomfo abufuw na ɛde ba   * Yes * No\* * Don’t know | 0 / 1 |
| 3 | Buruli ulcer mpɛnpɛnso bɛn na wohu no wɔ mfoni no yi?   * Nodule\* * Plague * Oedema * Ulcer * Don’t know | 0 / 1 |
| 4 | Buruli ulcer mpɛnpɛnso bɛn na ɛsɛ s**ɛ** Volunteer ka ho asɛm kyerɛ hospital adwuma yɛfo?   * Nodule * Plague * Oedema * Ulcer * All stages\* * Don’t know | 0 / 1 |
| 5 | Buruli ulcer nnyɛ ya koraa   * Yes\* * No * Don’t know | 0 / 1 |
| 6 | Hena na obetumi anya Buruli ulcer?   * Children * Males * Females * Anybody\* * Don’t know * Others……….. | 0 / 1 |
| 7 | Megyedi paa sɛ obi a ɔwɔ Buruli ulcer betumi de asae afoforo bere a wɔde wɔn ho aka no no   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Yebetumi abɔ yɛn ho ban afi Buruli ulcer ho anaa?   * Yes\* * No * Not sure | 0 / 1 |
| 9 | Yebetumi asa Buruli ulcer ama akɔ anaa?   * Yes\* * No * Not sure | 0 / 1 |
|  | Total |  |

**Buruli Ulcer: Attitude Questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | ɛnsɛ wobɛn obi a wanya Buruli ulcer anyɛ saa a wobenya bi |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | Sɛ mehu obi a wanya Buruli ulcer a, mɛka ho asɛm akyerɛ klinik a ɛbɛn me no |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | ɔkwan papa paa a wɔfa so sa Buruli ulcer yare no ne sɛ wode abibiduro bɛma yarefo no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | ɛsɛ Buruli ulcer yare biara wɔde kɔ ayaresabea |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Megye di paa sɛ sɛ mihu obi a ɔwɔ Buruli ulcer a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | Buruli ulcer de, ɛsɛ sɛ wofi ase sa wɔ fie na sɛ annyɛ yiye a, ansa na wode no akɔ hospital |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 7 | Me ho rentene me sɛ mɛka akyerɛ obi sɛ ɔnkɔ ayaresabea bere a misusuw sɛ ɔwɔ Buruli ulcer. Ebia na ɛnnyɛ nokware sɛ ɛyɛ Buruli ulcer. |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
|  | Total | | | | | |  |

**Knowledge questions on Lymphatic filariasis**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn na wohu no wɔ mfoni no mu yi?   * Elephantiasis\* * Boil * Other ……………….. | 0 / 1 |
| 2 | Yare bɛn na wohu no wɔ mfoni no mu no?   * Hydrocoele\* * Cancer * Don’t know * Other……………….. | 0 / 1 |
| 3 | Ɛyɛ dɛn na obi anya saa yare yi mu biara?   * Curse * Angry gods * Witches * Germs\* * Dirt * Don’t know | 0 / 1 |
| 4 | So yare yi betumi asae afoforo anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 5 | Sɛ obi betumi de asae afoforo a, ɔkwan bɛn so na ɛfa ba saa?   * Mosquito bite\* * Dirty hands * Sexual intercourse * Direct body contact * Contaminated food * Don’t know * Other……………………. | 0 / 1 |
| 6 | Ɔkwan anaa akwan papa paa a yɛde bɔ yɛn ho ban fi yare no ho no bi ne sɛn?....   * Use mosquito net\* * Reduce number of stagnant water in community\* * Drink clean water * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 |
| 7 | Saa yare yi, yebetumi ama ɛho aduru ma onipa no ho atɔ no anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Obi a ne nan no apegyaw kɛse esiane yare no nti no, sɛ ɔnom aduru a, ne nan no bɛtwetwe koraa anaa entumi nnyɛ yiye?   * Yes * No\* * Maybe * Don’t know | 0 / 1 |
|  | Total |  |

**Gyepim (Lymphatic Filariasis): Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | ɛnsɛ wobɛn obi a wanya gyepim anyɛ saa a wobenya bi |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 2 | Sɛ mehu obia a wanya gyepim a, mɛka ho asɛm akyerɛ klinik a ɛbɛn me no |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | ɔkwan pa paa wɔfa so sa gyepim yare no ne sɛ wode abibiduro bɛma yarefo no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa gyepim yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Megye di paa sɛ sɛ mihu obi a ɔwɔ gyepim a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | ɛsɛ sɛ mehwehwɛ me kurom sɛ mehu obi a ɔwɔ gyepim yare no bi a, na mama wakɔ ayaresabea ntɛm |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | ɔkwan a eye paa a ɛbɛma tew gyepim yare no so ne sɛ yɛbɛma ɔmanfo nyinaa ɛho aduro wɔ bere koro mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Knowledge questions on Yaws**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn na wohu no wɔ mfoni no mu yi?   * Yaws\* * Leprosy * Don’t know * Other ……………….. | 0 / 1 |
| 2 | So yare yi betumi asae afoforo anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 3 | Ɔkwan anaa akwan bɛn so na obi nya saa yare yi?   * Curse * Punishment from gods * Witches * Contact with the yaws ulcer\* * Sharing contaminated cloth\* * Houseflies\* * Germs\* * Mosquito bite * Contaminated food * Washing with dirty water * Punishment from God * Don’t know * Others (specify)...... | 0 /1/2/3/4 |
| 4 | Mmofra ne mpanyinfo, hefo na ɛtaa nya yare yi paa?   * Adults * Children\* * Don’t know |  |
| 5 | Ɔkwan anaa akwan papapaa a yɛde bɛbɔ yɛn ho ban afi yare yi ho ne, ebi ne sɛn?:   * Regular bathing\* * Reduce number of stagnant water in community * Drink clean water * Clean environment\* * Dress all ulcers\* * Eat clean and warm food * Do not get closer to the one with the disease * Don’t know * Other……………………. | 0 / 1 / 2 / 3 |
| 6 | Wobetumi asa gyatɔ ma akɔ koraa anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 7 | Obi betumi anya gyatɔɔ afi ɔbaa ne ɔbarima nna mu anaa?   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Yaws: Questions on Attitude**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | Mayɛ krado sɛ mɛhwehwɛ wɔn a wɔwɔ gyatɔ no wɔ bere mpo a wontua me ka wɔ saa adwuma no ho |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | Sɛ wantua me ka mpo a, gyatɔ biara a mehu no, mɛbɔ hospital anaa klinik a ɛbɛn me no amanneɛ |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yebetumi de abibiduro asa gyatɔ enti ɛho nhia sɛ wode bɛkɔ ayaresabea |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mpaebɔ betumi ama obi a wanya gyatɔ ho atɔ no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 5 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa gyatɔ yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 6 | Megye di paa sɛ sɛ mihu obi a ɔwɔ gyatɔ a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Wɔn a wɔwɔ gyatɔ no, ɛnsɛ sɛ wɔma kwan ma wɔkɔ nnipa dɔm mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | Mensuro sɛ mɛkɔ obi a ɔwɔ gyatɔ fie |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Scabies: Knowledge questions on Scabies (Nkorosankorosa/zongo lakyikyi/Korodoso/Dwibaadwibaa)**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Yare bɛn na wohu no wɔ mfoni no mu yi?   * Scabies\* Patient education: Scabies (Beyond the Basics) - UpToDate * Leprosy * Eczema * Don’t know * Other ……………….. | 0 / 1 |
| 2 | Sɛnkyerɛne bɛn paa na ɛda adi bere a obi anya saa yare yi?   * Intense itching\* * Fever * Coughing * Don’t know * Other……………… | 0 / 1 |
| 3 | So yare yi betumi asae afoforo anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 4 | Ɛyɛ dɛn na obi anya saa yare yi bi? (Ka dodow biara a wonim)   * Curse * Angry gods * Witches * Germs\* * Physical body Contact with affected person \* * Sharing contaminated cloth\* * Houseflies * Mosquito bite * Contaminated food * Don’t know * Other ……………………….. | 0 / 1 /2 /3 |
| 5 | Mpanyinfo, kyerɛ sɛ, wɔn a wɔadi mfe 15 ne akyi, ne mmofra, kyerɛ sɛ, wɔn a wonnya nii mfe 15 no, wɔn mu hena na wɔtaa nya saa yare yi bi paa?   * Adults\* * Children\* * Don’t know | 0 / 1 / 2 |
| 6 | Ɔkwan anaa akwan papapaa a yɛde bɛbɔ yɛn ho ban afi yare yi ho ne, ebi ne sɛn?:   * Regular bathing\* * Regular hand washing\* * Reduce number of stagnant water in community * Drink clean water * Don’t share cloth\* * Don’t share same bed / beddings * Clean environment * Dress all ulcers\* * Eat clean and warm food * Pray to God * Avoid handshakes\* * Do not get closer to the one with the disease\* * Don’t know * Other………………………………………………. | 0 / 1 / 2 / 3 /4 / 5 / 6 |
| 7 | Wobetumi asa saa yare yi ma akɔ koraa anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 8 | Saa yare yi, wobetumi anya afi ɔbea ne ɔbarima nna mu ma ayɛ yiye anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 9 | Megye me ho di paa sɛ, bere biara a mehu yare yi wɔ obi ho no, metumi akyerɛ yare ko   * Yes\* * No * Not sure | 0 / 1 |
|  | Total |  |

**Scabies: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | Mayɛ krado sɛ mɛhwehwɛ wɔn a wɔwɔ **Nkorosankorosa** no wɔ bere mpo a wontua me ka wɔ saa adwuma no ho |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | Sɛ wantua me ka mpo a, **Nkorosankorosa** biara a mehu no, mɛbɔ hospital anaa klinik a ɛbɛn me no amanneɛ |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yebetumi de abibiduro asa **Nkorosankorosa** enti ɛho nhia sɛ wode bɛkɔ ayaresabea |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa **Nkorosankorosa** yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Mpaebɔ betumi ama obi a wanya **Nkorosankorosa** ho atɔ no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | Megye di paa sɛ sɛ mihu obi a ɔwɔ **Nkorosankorosa** a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Wɔn a wɔwɔ **Nkorosankorosa** no, ɛnsɛ sɛ wɔma kwan ma wɔkɔ nnipa dɔm mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | Mensuro sɛ mɛkɔ obi a ɔwɔ **Nkorosankorosa** fie |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
|  | Total | | | | | |  |

**Nsɛmmisa a ɛfa Dwonsɔ Mogya ho Nimdeɛ** (Knowledge questions on Schistosomiasis**)**

|  |  |  |
| --- | --- | --- |
| No. | Item | Points |
| 1 | Hena na obetumi anya **Dwonsɔ Mogya** yare no bi? Mmaa anaa Mmarima?   * Males only * Females only * Both males and females\* ……………….. * Don’t know | 0 / 1 |
| 2 | Ɛyɛ dɛn na obi nya **Dwonsɔ Mogya** yare no bi? (ka dodow biara a wonim)   * Any contact with stream\* * Swimming in the river / stream\* * Drinking the water * Cooking with the water * Witches * Houseflies * Eating red sugar cane * Eating almond nut * Curse * Mosquito bite * Contaminated food * Punishment from God * Punishment from the gods * Eating snail in the river * Don’t know * Through sex * Others: ………………………………………….. | 0 / 1 / 2 |
| 4 | Wotumi sa **Dwonsɔ Mogya** yare no ma ɛyɛ yiye anaa?   * Yes\* * No * Don’t know | 0 / 1 |
| 5 | Ɔkwan anaa akwan papapaa a yɛde bɛbɔ yɛn ho ban afi **Dwonsɔ Mogya** yare ho ne, ebi ne sɛn? (Ka dodow biara a wonim)   * Regular bathing * Reduce number of stagnant water in the community * Drink clean water * Don’t eat almond nut * Don’t eat red sugar cane * Clean environment * Do not swim in the stream / river\* * Do not have sex * Eat clean and warm food * Do not get closer to the one with the disease * Wear wellington boots when working in water-logged area\* * Don’t know * Other……………………. | 0 / 1 / 2 |
|  |  |  |
| 7 | **Dwonsɔ Mogya** yare yi, wobetumi anya afi ɔbea ne ɔbarima nna mu ma ayɛ yiye anaa?   * Yes * No\* * Don’t know | 0 / 1 |
| 8 | Abibiduro tumi sa **Dwonsɔ Mogya** yare paa sen nnuru a wɔde ma wɔ ayaresabea no anaa?   * Yes * No\* * Don’t know | 0 / 1 |
|  | Total |  |

**Schistosomiasis: Attitude questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Item | Megye tom papaapa (Strongly  Agree) | Megye tom (agree) | Mennim (Neutral/  Don’t Know) | Me ne wo nnyɛ adwene (Disagree) | Me ne wo nnyɛ adwene koraa (Strongly  Disagree) | Score |
| 1 | Mayɛ krado sɛ mɛhwehwɛ wɔn a wɔwɔ **Dwonsɔ Mogya**  no wɔ bere mpo a wontua me ka wɔ saa adwuma no ho |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 2 | Sɛ wantua me ka mpo a, **Dwonsɔ Mogya**  biara a mehu no, mɛbɔ hospital anaa klinik a ɛbɛn me no amanneɛ |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 3 | Yebetumi de abibiduro asa **Dwonsɔ Mogya**  enti ɛho nhia sɛ wode bɛkɔ ayaresabea |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 4 | Mayɛ krado sɛ mɛyɛ nkyerɛkyerɛ afa **Dwonsɔ Mogya**  yare ho ama me kurow mu fo |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 5 | Mpaebɔ betumi ama obi a wanya **Dwonsɔ Mogya** ho atɔ no |  |  |  |  |  | (SA,A, N=0; D,SD=1) |
| 6 | Megye di paa sɛ sɛ mihu obi a ɔwɔ **Dwonsɔ Mogya** a, metumi ahu aka no ntɛm sɛ ampa sɛ ɛyɛ bi a |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 7 | Wɔn a wɔwɔ **Dwonsɔ Mogya** no, ɛnsɛ sɛ wɔma kwan ma wɔkɔ nnipa dɔm mu |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 8 | Mensuro sɛ mɛkɔ obi a ɔwɔ **Dwonsɔ Mogya** fie |  |  |  |  |  | (SA,A=1; N,D,SD=0) |
| 9 | Mɛtɔ aduan afi obi a ɔyare **Dwonsɔ Mogya** ɔtɔn aduan hɔ. |  |  |  |  |  | (SA,A=1; N,D,SD=0) |

**Section C: Nea ɛboa ma Volunteers gye nkyerɛkyerɛ tom na wɔde yɛ Adwuma**

**(** **Factors Associated with Adoption and Implementation of training Community-based volunteers in identification and referral of NTD patients among the intervention Group)**

This section seeks information about the factors associated with adoption and implementation of training community-based volunteers on NTD cases and referrals. Areas considered include the training venue, training delivery, training materials, and personal factors of the community-based volunteers.

**Training Venue or Environment**

1. Beae a muhyia mu gyee nkyerɛkyerɛ no, na w’ani gye ho anaa?
   1. Yes
   2. No
2. Bere a na mode hyiam a wɔde kyerɛkyerɛe no, na eye ma wo anaa?
   1. Yes
   2. No
3. Bere tenten a wɔde kyerɛkyerɛe no, na eye ma wo anaa?
   1. Yes, it was perfect for me
   2. No, it was too short
   3. No, it was too long

**The Training Delivery**

1. Kasa a wɔde kyerɛkyerɛ mo no, na eye ma wo anaa?
   1. Yes
   2. No
2. Akyerɛkyerɛfo no, wotumi kyerɛɛ neama mu yiye maa wotee ase yiye wɔ sɛnea wobetumi ahu obi a ɔyare na w’atumi ama wakɔ ayaresabea anaa?
   1. Yes
   2. No
3. ɔyɛkyerɛ ahorow ne nea akyerɛkyerɛfo no ma woyɛe bere a na woresua ade no, mfaso bi baa so maa wo anaa?
   1. Yes, it was perfect for me
   2. Yes, but he rushed through
   3. No, it was not helpful

**Training Materials**

1. Nneama bɛn na ɛboaa wo wo ma wotee nkyerɛkyerɛ ahorow no ase? (Ka dodow a wopɛ biara)
   1. Mfoni ahorow (Pictures)
   2. Videos
   3. ɔyɛkyerɛ ahorow (Demonstrations)
   4. Role play
   5. Nkyerɛkyerɛmu ahorow (Discussion)
2. Nhoma a mode suaa ade no, ɛmaa ɛyɛ mmerɛw maa wo sɛ wobɛte nea na wɔrekyerɛkyerɛ wo no ase anaa?
   1. Yes
   2. No

**Personal Factors**

1. Nhoma a mode suaa ade no, so wobetumi akan nsɛm a ɛwom no ate ase anaa? (Can you read the information in the training manual?)
   1. Yiw, mitumi kan te ase (Yes, I can read and understand)
   2. Yiw, mitumi kan naso mente ase papa (Yes, I can read, but I do not understand)
   3. Dabi, mintumi nkan (No, I cannot read)
   4. Dabi, mepɛ sɛ wɔkyerɛ ase kɔ Twi kasa mu (No, I want it to be in the local language)
2. Wusuw sɛ dɛn na ɛbɛboa wo ama watumi asua nea wɔkyerɛkyerɛɛ no yiye? (What do you think will help you learn better??
   1. I need more practical sessions
   2. I need more pictures
   3. I need to watch more videos
   4. I need more time to practice
   5. Others (specify)

**Nea w**ɔkyerɛkyerɛɛ wo a Wode bɛyɛ Adwuma (**Adoption of training information)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Construct** | **Response scale (Circle the right option)** | | | | |
| 11 | Sɛ wode nkyerɛkyerɛ a wanya seisei no toto nea wakɔ atwam no ho a, emu nea ɔwɔ he na aboa wo paa? | Much worse | Somehow worse | same | Somehow better | Much better |
| 12 | Sɛn na nkyerɛkyerɛ foforo yi bɛboa wo ama watumi ayɛ wadwuma yiye sɛ volunteer wɔ kuro a wote mu no mu? | Very poor | Poor fit | Moderate fit | Good fit | Very good fit |
| 13 | Neama foforo a w’asua no, mpɛn ahe na woatumi de adi dwuma? | Never | Rarely | Sometimes | Often | Very Often |
| 14 | Wususuw sɛ afoforo hu sɛ w’asua neama foforo a ɛreboa wo ne wo kuromfo no anaa? | Not visible | Slightly visible | Moderately visible | Clearly visible | Very visible |
| 15 | Mpɛn sɛn na wo namfonom ne afoforo a wone wɔn bom yɛ volunteer adwuma yi de mmoa ma wo na ama watumi de nea wasua no ayɛ adwuma? | Never | Rarely | Sometimes | Often | Very Often |
| 16 | Nneama bɛn na ayɛ osiakwan a enti wontumi mfa nea w’asua no nnyɛ adwuma wɔ beae a wote no? | Time constraints | Resources limitation | Lack of support | Community resistance | No transport |
| 17 | Nneama bɛn na aboa wo ama watumi de nea w’asua no atumi ayɛ adwuma wɔ beae a wote no? | Adequate resources | Strong community support | Support from the trained nurses / officers | Clear procedures | Regular practice |
| 18 | Wususuw sɛ nea woasua no, ɛso bɛba wo mfaso wɔ volunteer adwuma no mu? | Not relevant | Slightly relevant | Moderately relevant | Very relevant | Extremely relevant |
| 19 | Sɛn na ntetee a wunyae no ato wo nimdeɛ a wowɔ sɛ volunteer no mu? | Much worse | Somewhat worse | No change | Somewhat better | Much better |
| 20 | Hospital ne officers no, so wɔde mmoa ma wo ma wutumi yɛ woadwuma sɛ volunteer anaa? | No support | Little support | Some support | Good support | Excellent support |

**APPENDIX C** : NTD baseline data extraction form for Year 2024

District:---------------------------Subdistrict----------------------Community--------------------------

Name of Volunteer-------------------------------------------------Volunteer ID------------------------

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Disease** | **Jan** | **Feb** | **Mar** | **April** | **May** | **June** | **Jul** | **Aug** | **Sept** | **Oct** | **Nov** | **Dec** | **Total** |
| Leprosy |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BU |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yaws |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hydrocele |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Lymph-  Edema |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Schisto. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Scabies |  |  |  |  |  |  |  |  |  |  |  |  |  |

# APPENDIX D: COMMUNITY-BASED VOLUNTEER NTD REFERRAL FORM

For Suspected Neglected Tropical Diseases

**1. Volunteer Information**

Name of Volunteer--------------------------------------------Community------------------------------

Contact No.------------------------------------Volunteer ID---------------------------------------------

District-----------------------------------------Sub-district-----------------------------------------------

1. **Disease Information**

**Select Suspected Disease being Referred (Underline the suspected case)**

Leprosy Buruli Ulcer Lymphedema 

Yaws  Hydrocele  Scabies 

Schistosomiasis

1. **Patient Information**

Name of Patient:-------------------------------Community--------------------------------Sex--------------

Age---------Contact No.----------------------------------------Date Seen------------------------------------

Date Referred----------------------------------Did Patient Accept Referral? Yes---- No -----

1. **Referral Information**

Name of Health Facility------------------------------------------------

Contact No. of Health Facility-----------------------------------------

1. **For Health Facility Use Only**

Date Patient Seen at Health Facility---------------------------------------------------------------------

Action taken-------------------------------------------------------------------------------------------------

Health Care Provider’s name-----------------------------------------------------------------------------

Date Volunteer given feedback---------------------------------------------------------------------------

Please complete this form in duplicate. Give one copy to the patient and keep one for your records

# 

# APPENDIX E: SAMPLE MONTHLY NTD REPORTING FORM BY COMMUNITY VOLUNTEER

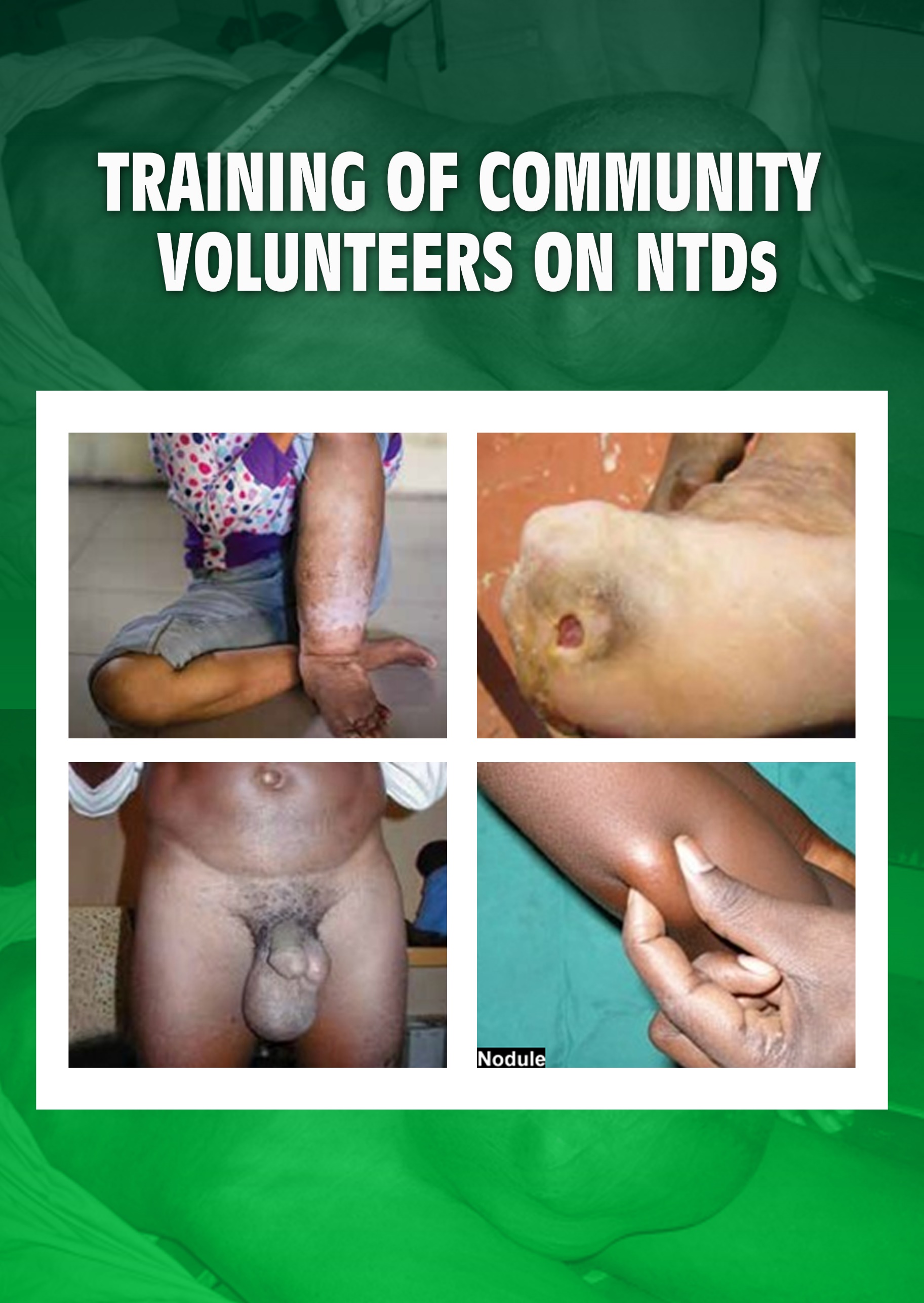
Name of volunteer: nearest health facility Sub-district District

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DATE | Name of community where case identified | Sex  (male =m,  Female=f) | Age (years) | Condition / disease | Ever reported to health facility (yes = 1, no= 2) | Is person currently on treatment  (yes =, no=2) | Action (referred to hf 1st time = 1; encouraged to report again to hf = 2 | Date client referred to health facility | Feedback from health facility |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |

Challenges encountered during the month:

-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------

# APPENDIX F: TRAINING MANUAL



1

**FOR THE CONTROL OF NEGLECTED**

**TROPICAL DISEASES IN EASTERN REGION - GHANA**

**CASE DEFINITIONS, SIGNS AND SYMPTOMS**

2

**CASE DEFINITION:**

* Leprosy is a chronic infectious disease that mainly affects the skin, peripheral nerves and mucous membrane of the upper respiratory tract. It is caused by bacteria, *Mycobacterium leprae*.
* The skin is affected early in the time of the infection. The first signs are usually skin patches of different sizes that are often dry and the colour may be a little bit paler than the rest of the skin.
* Leprosy can also manifest in the form of multiple lumps of varied sizes.
* Affected person(s) become insensitive to hot objects or rubbing shoes and ulcers may form around these areas.
* If leprosy is left untreated, these ulcers (usually on the hands or on the feet), which are known as neuropathic ulcers, may lead to the destruction of other structures in the area including bone. If the nerves are affected and damaged, loss of sensation on skin, weakness or paralysis of muscles or loss of sweating may occur. Damage to nerves can cause disabilities and physical impairments in Leprosy affected persons (WHO, 2018; ILEP 2007).



**1. LEPROSY (KWATA)**

****

**SIGNS AND SYMPTOMS:**

* Painless skin lesions, ulcers or patches, with definite

loss of sensation.

* Spots on the skin that may be slightly red, darker

 or lighter than other normal parts of the skin.

* Patches can be flat or raised.
* Do not itch.
* Usually do not hurt.
* Painless ulcers on the soles of feet.
* Painless swelling or lumps on the face or earlobes,

loss of eye brows or eyelashes.  *Patches on skin (Source: ILEP, 2019)*

* Touch sensation reduced.
* Pins and needles sensations.
* Numbness in a finger or toe.
* Clawing of fingers and toes.
* Nerve injury.
* Eye damage such as dryness and reduced blinking.
* Loss of extremities (ends of fingers or nose) due to

repetitive injuries, wounds or infections.



**HOW IS TRANSMITTED?**

* The disease is transmitted through droplets, from the

nose and mouth, during close and frequent contact with

untreated cases. Infection can occur at any age.

* Patients under treatment do not spread the disease.

Disease does not spread by touch.

3

**WE SHOULD KNOW THAT:**

* Leprosy is a disease caused by a germ.
* Leprosy **IS NOT** caused by witchcraft, a curse, or a punishment.
* Leprosy can spread from droplets of the nose and mouth, during close contact with untreated patients for a long period.
* Infection can occur at any age.
* Patients under treatment do not spread the disease. Leprosy is curable with multidrug therapy (MDT).
* Untreated, leprosy can cause progressive and permanent damage to the skin, nerves, limbs, and eyes and long-term disability.
* **Long term disability can be prevented through early diagnosis and treatment.**

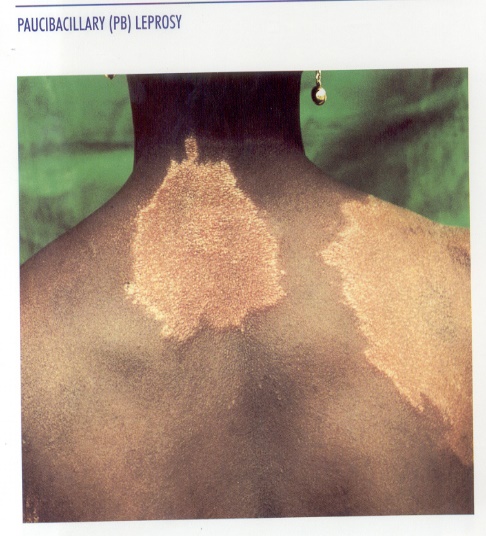
**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis of leprosy at the health centre:**

* The patient will be checked for skin patches by the health worker.
* The health worker will complete a test using a pen, feather or cotton wool to check how much you can feel.
* The health worker will provide instructions for treatment or refer the patient to another health facility for further diagnosis and treatment.



**2. BURULI ULCER**

4



**CASE DEFINITION:**

* Buruli Ulcer (BU) is a disease caused by a germ (bacteria: *Mycobacterium ulcerans*) which affects mainly the skin. BU can also affect the bones, which can cause lifelong disability.
* It starts as a painless nodule (swelling / lump) at the beginning which develops into hardened skin (plaque) and then swelling (oedema).
* Sores (ulcers) with undermined edges develop, with infections of the bone at the later stage of the disease. However, this can be managed and early diagnosis is important to prevent disability (WHO, 2015).

**SIGNS AND SYMPTOMS:**

The different stages of BU are as follows:

*(Credit: WHO)*

**NODULE**

* Painless nodule (swelling / lump) at the beginning.
* Raised lumps on the skin that subsequently ulcerate.



**PLAQUE**

* A plaque is a large painless swelling of more than 3

centimetres in diameter with clearly marked borders.

*(Credit: WHO)*

* The skin feels hard like cardboard.

**OEDEMA (SWELLING)**

* Oedema is a large painless swelling.

*(Credit: WHO)*

* It often involves the arms and the legs.

**ULCER (SORE)**

*(Credit: Rebuild Ghana, WHO)*

* Typical ulcers are not very painful.
* Have undermined edges and
* Whitish-yellowish appearance.
* Underlying red moist base.

**OSTEOMYELITIS (INFECTION OF BONE)**

Infection can affect bones and joints at later, more severe

stage of illness.

*(Credit: WHO)*

**4. Ulcer (Sore)**

**HOW IS IT TRANSMITTED?**

5

* The means of transmission is not known, however, in many cases it is attributed to exposure to rivers, streams or wetlands.
* BU occurs most frequently among people who live or work close to rivers and slow-moving bodies of water.
* The incubation period is 1-9 months (average 4.5 months).
* Children under 15 years are most at risk.
* BU is not transmissible from one person to another.

**WHAT TO DO WHEN YOU REFER:**

* Complete the Community Referral Slip and give this to the patient to take to the health centre.
* Complete the Community Register.

**Explain to the affected person what to expect during Buruli ulcer diagnosis at the health centre:**

* The skin will be examined by a health worker.
* The health worker will provide instructions for any treatment or refer the patient to another health facility.
* Sometimes they might n do a laboratory test or take a sample to check for a certain disease.

**WE SHOULD KNOW THAT:**

* Buruli ulcer is a disease caused by a germ.
* The exact mode of transmission is still unknown.
* Buruli ulcer **IS NOT** caused by witchcraft, a curse or punishment.
* You **CANNOT** get Buruli ulcer through contact with an affected person.
* People that live or work close to rivers and slow-moving water bodies are more likely to be affected. Children under 15 are more likely to be affected.
* Buruli ulcer can lead to lifelong disabilities but **early diagnosis and treatment can prevent disability**. Surgery and physiotherapy are treatment options for Stage 5 symptoms.

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT**

**3. LYMPHEDEMA / ELEPHANTIASIS (GYAPIM)**

6

**CASE DEFINITION:**

* Lymphedema usually presents in the legs, but may occur in the arms or breasts.
* Lymphedema causes swelling and enlargement of body tissues.
* Lymphedema may be caused by lymphatic filariasis, which is a disease transmitted by mosquitoes.
* Hygiene and skin care are important to prevent secondary bacterial infections which cause “acute attacks” which are an acute inflammation of the skin, lymph vessels and lymph glands accompanied by debilitating pain, fever and swelling.
* Lymphedema can sometimes be reversed in early stages. In later stages, improvements can be made if well managed.
* Long term disability can be prevented through early diagnosis and treatment



**SIGNS AND SYMPTOMS:**

* Swelling of the leg.
* Unilateral swelling of limb (e.g. one leg enlarged).
* The affected area is often warm, reddish and painful.
* Gradually, the skin may become thickened, covered in small lumps

giving a cobbled appearance and the possibility of recurrent infections.

* Extreme pain of the affected areas.
* Hardening and thickening of the skin.
* Fever, chills, headache and weakness.
* Acute attacks (swelling, warmth, redness, and extreme

pain of the affected area).

**HOW IS IT TRANSMITTED?**

* Lymphedema caused by lymphatic filariasis occurs when

filarial parasites (worms) are transmitted to humans

through mosquito bites.

* The mosquito takes up the microfilariae and can

spread lymphatic filariasis to other people.

* The adult worms live in human lymph vessels.

They release millions of very small worms (microfilariae),

which live in the blood and can only be seen with a microscope





*Swollen leg, cobbled oedema (WHO, 2001)*



*Lymph obstruction (WHO, 2018)*

**HYDROCELE (ETWO)**

**CASE DEFINITION:**

* Hydrocele presents as a swelling of the scrotum. It is commonly caused by lymphatic filariasis which is transmitted by mosquitoes.



**SIGNS AND SYMPTOMS:**

* Swelling of the scrotum.
* The fluid can collect on only one side (or on both sides).
* Accumulation of fluid in the sac covering the testes.

**HOW IS IT TRANSMITTED?**

* Hydrocele caused by lymphatic filariasis occurs when filarial

parasites (worms) are transmitted to humans through mosquito bites.

* When a mosquito bites a person with microfilariae in his blood,

the mosquito takes up the microfilariae and can spread

lymphatic filariasis to other people.

* The adult worms live in human lymph vessels. They release

millions of very small worms (microfilariae), which live in the

blood and can only be seen with a microscope.

*Swollen scrotum (Source: WHO, 2018)*



**HYDROCELE SURGERY RESULTS:**

**BEFORE**

**AFTERR**

*(WHO, 2008)*

7

**WE SHOULD KNOW THAT:**

* Infection through lymphatic filariasis is caused by worms which are spread from person to person through mosquitoes.
* The adult worms live in human lymph vessels. They release many small worms (microfilariae), which live in the blood and can only be seen with a microscope.
* Hydrocele **IS NOT** caused by witchcraft, a curse or punishment.
* You **CANNOT** get hydrocele through contact with an affected person.

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT.**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient will be checked for scrotal swelling.
* They will be asked to explain other symptoms experienced.
* The health worker will provide instructions for treatment or refer the patient to another health facility for further diagnosis and treatment.
* Treatment options include a quick simple surgery or painkillers to relieve pain.

8

1. **YAWS (GYATƆ)**

9

**CASE DEFINITION:**

* Yaws is a chronic disfiguring and debilitating infectious disease caused by a germ called Treponema pertenue
* The disease affects skin, bone and cartilage.
* Only humans are currently believed to suffer from yaws
* Yaws primarily affects children aged under 15 years
* It is transmitted from person to person. Houseflies can also transmit it from the sick person to the cut on your body
* Yaws is cured with a single oral dose of an inexpensive antibiotic called azithromycin.
* Without treatment, yaws may disappear but can reappear with more problems to the brain, bones, cartilage, and the heart.
* Yaws can destroy your bones and nose

**PREVENTION**

* Properly dispose discharges and soiled articles from the sick person.
* Report early to the health facility near you for treatment
* Dress the cut or ulcer on your body so that the houseflies will not transmit the germs to you
* Clean your environment to reduce breeding of houseflies



Yaws papules Yaws macules



Yaws in the feet Yaws in the palm

10

**WE SHOULD KNOW THAT:**

* Yaws is caused by germs which are spread from person to person through contact with open sore.
* Houseflies can also transmit Yaws
* Yaws will not kill you but can disfigure you.
* Yaws **IS NOT** caused by witchcraft, a curse or punishment.
* You **CANNOT** get Yaws through food or water.

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT.**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient will be checked for Yaws.
* The health worker will provide instructions for treatment
* Treatment options include an oral medication or injection

**SCABIES (NKOROSANKOROSA / KRODOSO /SANTWORE)**

11

* Scabies Scabies is an infestation of the skin by a human itch mite.
* Scabies causes intense itching and a pimple-like skin rash
* Intense itching occurs in the area where the mite burrows. The need to scratch may be stronger at night. Human scabies is most commonly spread by direct, prolonged skin-to-skin contact with a person who has scabies. Less commonly, sharing clothing, towels, or bedding used by an infected person
* Can spread within family, school class, boarding houses, prisons, and other places where people congregate

**SIGNS AND SYMPTOMS**

The most common symptoms of scabies are intense itching, especially at night, and a pimple-like skin rash. Common areas on body where symptoms occur include:

* between fingers,
* in the skin folds of the wrist, elbow, knee, or armpit, and
* on the penis, nipples, waist, buttocks, and shoulder blades.
* Infants and very young children often experience a rash on the head, face, neck, palms, and soles of the feet.



**WE SHOULD KNOW THAT:**

* Scabies is easy to treat.
* Medicated skin creams or pills kill the mites that cause scabies and their eggs. But itching may not stop for many weeks after treatment.
* Because scabies spread so easily, it is recommended to treat the entire family or any close contacts.
* Scabies is not transmitted through food, water, or by houseflies
* Scabies is not caused by Witchcraft
* Anyone can get scabies

**REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT**

12

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the nearest health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient will be examined for scabies.
* The health worker will provide instructions for treatment
* Treatment options include an oral medication or cream to be applied on the skin

**SCHISTOSOMIASIS / BILHARZIA (ADWONSƆ MOGYAA)**

13

* Schistosomiasis is a disease caused by parasitic worms. Parasites are creatures who live in or on another organism (host) and get their food from the host
* The parasites that cause schistosomiasis live in certain types of freshwater snails (Abebew).



* Schistosomiasis spreads when you come into contact with unsafe water that contains these snails and can stay in your body for years.
* The parasite can stay in urogenital areas or in your intestines.
* Anyone who swim or bath in the infected stream can get the disease

**SIGNS AND SYMPTOMS**

* Some people may have no symptoms for longer years
* Some may have skin rashes
* Others may have signs which look like malaria such as chills, body aches, abdominal pains, cough, fever.
* After sometime, there may be:
* Blood in urine
* Blood in feaces / stool

**WE SHOULD KNOW THAT:**

14

* Anyone can get Bilharzia
* In areas known to have snails and parasites responsible for Bilharzia, certain activities in freshwater bodies such as pools, lakes, and rivers should be avoided.
* Do not think the water is harmless merely because others claim it is safe. It is wiser to take caution in areas where the parasite is known to exist.
* Refrain from consuming water from these sources. Whilst drinking the water itself may not directly transmit the parasites, they can penetrate the skin around your mouth.
* Abstain from bathing or swimming in these waters.
* Avoid washing clothes in these water bodies.
* Do not engage in fishing activities in these fresh water bodies.
* If you have the disease and not treated, you will suffer the consequences
* Bilharzia is not caused by witchcraft, curse, eating almond nut, or red sugar cane

1. **REFER SUSPECTED CASES TO THE NEAREST HEALTH CARE CENTRE FOR FURTHER DIAGNOSIS AND TREATMENT.**

**WHAT TO DO WHEN YOU REFER:**

* **Complete the Community Referral Slip and give this to the patient to take to the nearest health centre.**
* **Complete the Community Register.**

**Explain to the affected person what to expect during diagnosis at the health centre:**

* The patient’s urine will be examined for Bilharzia.
* The health worker will provide instructions for treatment
* You will be given an oral medication based on your height

**MY NOTES:**

15

**APPENDIX G: LINKS TO VIDEOS, VARIOUS ROLE PLAYS, AND FIELD VISIT**

**Leprosy**: https://www.youtube.com/watch?v=qGXx\_RiK6XA . This video is about volunteers examining families for signs and symptoms of leprosy. <https://www.youtube.com/watch?v=r6XESrsbtAY>. This video link focuses on the ‘;basic diagnosis of leprosy. https://www.youtube.com/watch?v=zLBZXA4L1qw. This video link is about the complications of leprosy. The fourth video link, <https://www.youtube.com/watch?v=nJH8I4VYQaE> shows the lived experiences of a cured leprosy patient in Ghana

**Buruli ulcer** videos shall include https://www.youtube.com/watch?v=W0Gu3kNE\_9c. This video link is about the lived experiences of a cured Buruli ulcer patient. The second shall be a documentary on the WHO Division for Communicable Disease Control, Prevention, and Eradication Global Buruli Ulcer Initiative.

**Schistosomiasis and lymphatic filariasis**: The main video will be a documentary on neglected tropical diseases by the Ghana Health Service. This video presents information on five NTDs: soil-transmitted helminths, lymphatic filariasis, trachoma, onchocerciasis, and schistosomiasis. The focus shall be more on lymphatic filariasis and schistosomiasis. The second video will be about the animation life cycle of schistosomiasis. Video source: https://www.youtube.com/watch?v=Qoo9T3emHIQ

**Yaws**: Only one video on yaws shall be shown. Source: https://www.youtube.com/watch?v=5jabooIVUgg. This video is in the Twi language and gives information about the clinical presentation of yaws and its treatment.

Scabies: https://www.youtube.com/watch?v=DSl3kJht69k. This video explains how scabies can be transmitted and how it cannot be transmitted, the signs and symptoms of scabies, prevention of scabies, and treatment.

**Discussion for Brainstorming**

The following points shall be used for brainstorming on the selected NTDs.

**Leprosy**

1. Myths about leprosy
2. Early signs and symptoms
3. Importance of early detection and treatment
4. Stigma reduction and community support
5. Referral pathways for suspected cases

**Yaws**

1. Symptoms
2. Transmission and prevention strategies
3. Community awareness and reporting

**Lymphedema / hydrocele**

1. Myths about the disease
2. Causes and symptoms
3. Access to health care and support

**Buruli ulcer**

1. Myths about Buruli ulcer
2. Early signs
3. Importance of early detection and prevention
4. Community awareness

**Scabies and Schistosomiasis**

1. Signs and symptoms
2. Transmission
3. Importance of early diagnosis and treatment
4. Preventive strategies

**Role Plays**

Roles plays shall be enacted to improve positive attitude of the volunteers towards NTDs detection and referral (Brzykcy et al., 2009). The role plays shall enhance the volunteers understanding of what is expected from them (Krentel et al., 2017). It will also motivate them, enhance empathy, enhance their internalization of what they have learned (Owusu et al., 2023). The following shall be the suggested role plays on the NTDs to be discussed:

**Leprosy**: A community member, Mr. T, with three skin patches on his face approaches a community volunteer, Mr Atta. He tells the volunteer myths about his condition. The volunteer listened attentively. The volunteer asked few questions about how the skin lesion appeared and how long it has been on his face. He inquired about skin patches on other parts of his body. He finds out if he has been to any health facility with his condition. He again found out if he has used any medication or taken the condition to any traditional healer or herbalist. He then educates Mr. T about leprosy, early signs, possible transmission, the need for early treatment. He assures Mr.T that his condition is treatable and addresses his fear of stigma. Mr. Atta later involved a family member, upon permission from Mr. T.

**Yaws awareness and case reporting**: A community member complains about an ulcer on the right leg of his 10-year old boy. Upon questioning, you realized that there are others in the home who have similar clinical features. You decided to visit the home of the boy with suspected yaws. You educated the household about yaws, the transmission, prevention, and importance of early reporting. You encourage them to report cases to you as early as possible. You went through the referral processes.

**Lymphedema**: A volunteer kindly approached a community member who has suspected lymphedema. He discusses with him the possibility of lymphedema. He allays his fears and stigma. He educated him on the importance of early reporting. He referred him to the nearest health facility, the Oyinka CHPS compound.

**Buruli ulcer:** A volunteer identifies Mr. Q with a painless nodule on the right hand. The volunteer gently approached him. He educated Mr.Q about the painless nodule and referred him to the Onipa Nua CHPS compound.

**Scabies**: A volunteer visits a home and realize the whole family has itchy body rashes. He suspected scabies. He educated them on signs and symptoms and importance of early reporting. He referred the entire family to the Sikapa Health Center.

**Schistosomiasis:** The chief of Oboba community mentioned that, once you turn 13, you must have bloody urine as a sign of maturity. You explained to the chief the signs and symptoms of schistosomiasis, importance of early reporting, and addressed all myths about schistosomiasis.

**Field Work**

Field work practice in volunteer training is very important in bridging the theoretical and practical knowledge gap (Brzykcy et al., 2009; Hirsch & Paczyńska, 2024). The volunteers will be assigned to teams comprising two members for the fieldwork. Each team shall be assigned territories in the subdistrict where the training is being held. To promote the recognition of NTDs in various communities, each member shall wear a T-shirt with pictures of lymphedema and Buruli ulcer on the back and Yaws and leprosy on the front. Additionally, photos of these diseases shall be printed on both the front and back pages of an A3 sheet, laminated, and used as tags. The inscription to be written on the paper shall be: “Have you seen it? Report to me”. In addition to the resources, each trainee shall be given a prepared complimentary card. These cards, which bear the mobile phone numbers of the volunteers, will be given out to household heads in their respective communities so they can call and alert the volunteer of any suspected NTD. In addition, each volunteer shall be given copies of a leaflet containing information about the NTDs. This leaflet will be distributed to households they will visit (Bonney, 2016). This will facilitate early notification of any of the NTDs to the community volunteer (Moore & Barnett, 2019). The volunteers shall have their data-capturing and referral forms. Each volunteer shall be given rubber envelop bag containing pen, pencils, and erasers and all forms required. The fieldwork will last for not more than 1-hour. Field experiences and recommendations will be discussed after the visit.

**APPENDIX H: CBSV DATA FOR EASTERN REGION, 2022**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N |  | | | |
| Reporting District | Female | Male | Total |
| 1 | Abuakwa North | 4 | 13 | 17 |
| 2 | Abuakwa South | 22 | 39 | 61 |
| 3 | Achiase | 15 | 39 | 54 |
| 4 | Akwapim North | 33 | 40 | 20 |
| 5 | Akwapim South | 18 | 13 | 31 |
| 6 | Akyemansa | 8 | 73 | 81 |
| 7 | Asene Manso Akroso | 14 | 52 | 66 |
| 8 | Asuogyaman | 13 | 33 | 46 |
| 9 | Atiwa East | 17 | 33 | 50 |
| 10 | Atiwa West | 12 | 17 | 29 |
| 11 | Ayensuano | 22 | 81 | 103 |
| 12 | Birim Central | 16 | 21 | 37 |
| 13 | Birim North | 42 | 57 | 99 |
| 14 | Birim South | 11 | 44 | 55 |
| 15 | Denkyembour | 20 | 29 | 31 |
| 16 | Fanteakwa North | 15 | 78 | 93 |
| 17 | Fanteakwa South | 22 | 29 | 51 |
| 18 | Kwaebibirem | 12 | 31 | 43 |
| 19 | Kwahu Afram Plains South | 17 | 98 | 115 |
| 20 | Kwahu East | 28 | 67 | 95 |
| 21 | Kwahu North Afram Plains North | 59 | 108 | 167 |
| 22 | kwahu south | 10 | 42 | 32 |
| 23 | Kwahu West | 25 | 32 | 57 |
| 24 | Lower Manya Krobo | 49 | 48 | 97 |
| 25 | New Juaben North | 10 | 13 | 24 |
| 26 | New Juaben South | 23 | 27 | 50 |
| 27 | Nsawam Adoagyiri | 27 | 27 | 54 |
| 28 | Okere | 21 | 33 | 54 |
| 29 | Suhum | 17 | 147 | 164 |
| 30 | Upper Manya Krobo | 39 | 140 | 179 |
| 31 | Upper West Akim | 13 | 46 | 59 |
| 32 | West Akim | 13 | 49 | 62 |
| 33 | Yilo Krobo | 8 | 95 | 103 |
| **34** | **Eastern** | **675** | **1,696** | **2,371** |
|  |  |  |  |  |